STS-134/ULF6 *FD06 Execute Package*

MSG	Page(s)	Title
046A	1 - 14	FD06 Flight Plan Revision
047	15 - 16	FD06 Mission Summary
048	17	FD06 Transfer Message
049	18	STORRM ACT with DRU POWERDOWN
050	19 - 21	STS-134/ULF6 FD6 EVA DELTAS
051B	22 - 24	OGS Continuous Remediation Installation Big Picture Words
052	25 - 41	OGS Recirc Loop Continuous Remediation Inst
053	-	FD6 Event Summary Message (Pope Benedict XVI VIP Call)
054A	42 – 45	ULF6 FD6 Stowage Notes
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057	65 – 71	KU-Band COAX Data Cable Routing - Part 3
058A	72	Ku-Band Coax Cable Routing Big Picture Words
059	73	FD06 Crew Choice Downlink Opportunities

Approved by FAO:
M. Schieb

Michael Schieb

Approved by OpsPlan:
J. Kitchen

Although there was much consternation about the Little Debbie Cloud Cakes, we've informed Mr. Shannon that they are indeed <u>not</u> Noctilucent Cloud Cakes…..

1 MSG INDEX
2 MSG NO.   TITLE
16
17

18   1. Post-Sleep Cryo Config
19   For today's post-sleep cryo config, O2 tanks 1 & 2, and H2 tanks 1 & 5 will be active.
20
21   **R1   O2,H2 MANF VLV TK1 (two) - OP (tb-OP)**
22   **O2 TK2 HTRS A,B (two) - AUTO**
23
24   **A15   CRYO TK5 HTRS O2 A,B (two) - OFF**
25
26   2. Pre-Sleep Cryo Config
27   √MCC for deltas prior to configuring for pre-sleep.
28
29   For tonight's pre-sleep cryo config, manifold 2 will be closed with O2 and
30   H2 tanks 2 & 5 active.
31
32   **A15   CRYO TK5 HTRS O2 A - AUTO**
33
34   **R1   H2 TK2 HTRS A,B (two) - AUTO**
35   **O2,H2 TK1 HTRS A,B (four) - OFF**
36   **MANF VLV TK2 (two) - CL (tb-CL)**
37
38   3. Spanky and Taz - This morning you will work on the first part of the OGS Continuous
39   Remediation Installation. For an overview of this task, please reference MSG 051B
40   (27-0449B) OGS Continuous Remediation Installation Big Picture Words.
41
42   4. Condensate Changeout Details
43   For today's condensate changeout, use any 1 of 4 empty ISS condensate CWC
44   S/Ns 1035, 1066, 1082, or 1090 located in 3.0 CTB S/N 1016 currently temp stowed
45   on the Shuttle middeck. After changeout, temp stow Orbiter condensate CWC S/N
46   6006 in NOD2O2 for processing. Report ISS CWC S/N to MCC-H and notify Ron
47   when complete.
48
49
50
51
52

5. <u>FD6 LiOH Details</u>

    CO2 levels for the docked mission are continuing to trend well below predicts. As a
    result, the FD6 Post Sleep LiOH changeout can be deferred. Strike this can and
    perform subsequent changeouts per the existing cue card. A new cue card reflecting
    any changes will be uplinked later in the mission.

    For the presleep change out tonight, consider donning PPE during this and
    subsequent LiOH changeouts which use STS-130 or STS-132 cans. Additionally,
    report which can numbers are used during these change outs.

6. <u>Focused Inspection Procedures</u>

    There have been some minor changes to the Focused Inspection procedure since
    the version you reviewed yesterday. The most notable change is that the OCAS
    destination PORs for the inspection positions (steps 4 through 8) now include
    decimal places. While we do not normally do this, we're hopeful that the additional
    accuracy will limit the amount of adjustment that is required to get the appropriate
    field of view. Also, we have uplinked a new DOUG targets file since inspection point
    1 has changed slightly.

7. <u>STORRM</u> - Mark/Drew, Sorry about the confusion regarding the STORRM procedure
    yesterday. We've revised it to contain all the necessary steps in one procedure.
    Reference msg 49. We've also added the STORRM activation/deactivation callouts
    to the detailed timeline in addition to which DRU to power off. For today, power off
    DRU 1.

8. <u>FD06 EVA Updates:</u>

    Mark, Drew, Spanky and Taz,
    Please reference MSG 27- 0631 (134-050) STS-134/ULF6 FD6 EVA DELTAS
    during your timelined EVA related activities today. The message contain updates to
    the EVA Systems procedures; EMU 2 CO2 sensor dryout; EVA 2 Inhibit Pad, EVA
    Tool Config, and EVA 2 detailed procedures; a SCU 1 Check; and IRU
    troubleshooting notes.

9. Taz - We have added an ISS IFM task on your timeline to route the Ku-Band Coax
    Data Cable from LAB1D2 to LAB1O1. For an overview of this task, please reference
    MSG 058A (27-0597A) Ku-Band Coax Cable Routing Big Picture Words.

10. Message 059 are Crew Choice Downlink opportunities during Post Sleep and
    PreSleep on FD6.

11. We will uplinking ISS stowage notes for activities that require ISS equipment in the
    execute package. These will be listed as ULF6 FDX Stowage notes. The first is
    message 134-054A: ULF6 FD6 Stowage Notes.

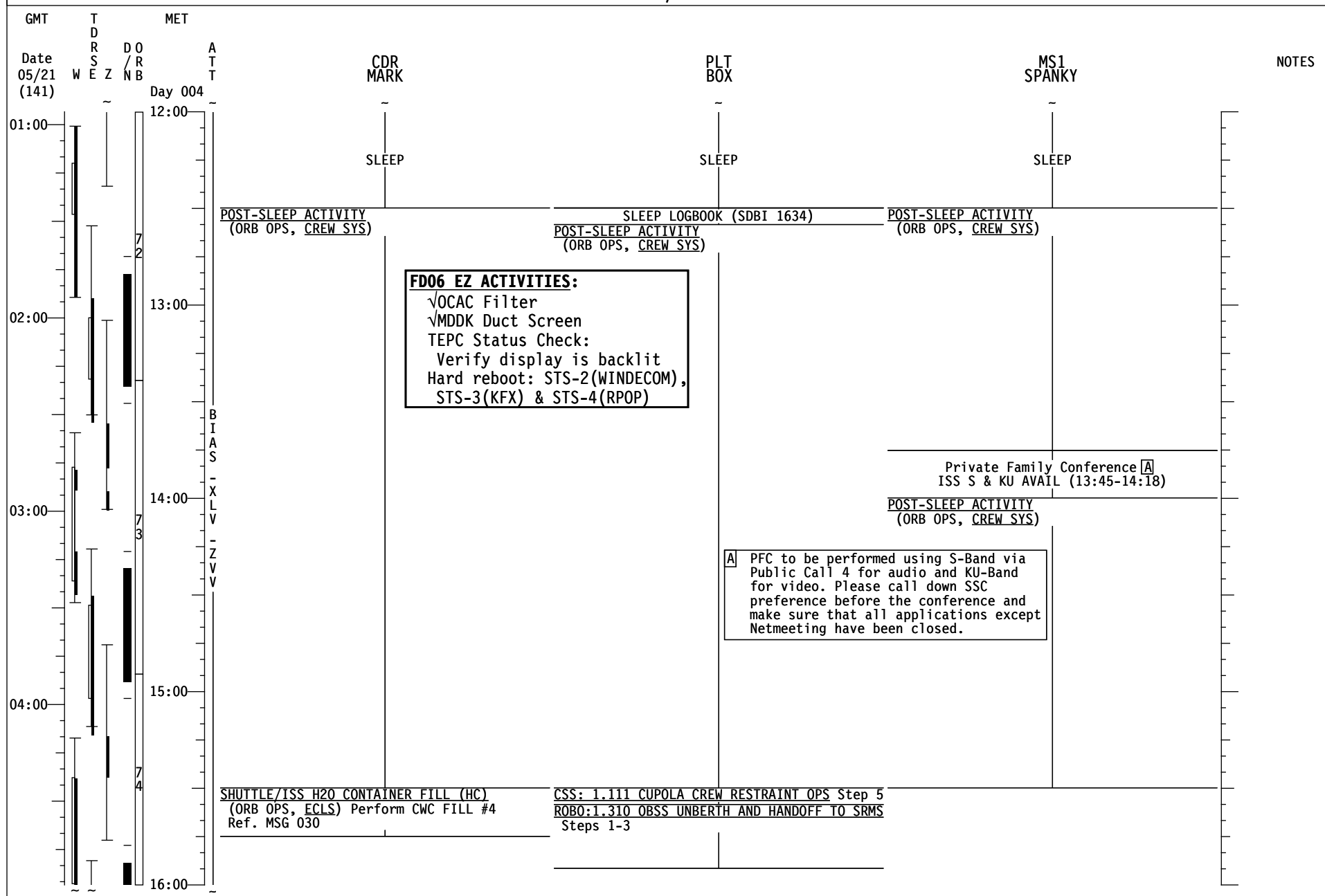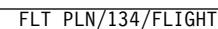12. REPLACE PAGES 2-18 AND 2-20, AND 3-56 THROUGH 3-65.

GMT 05/21/11 (141)

| | 01 12 | 02 13 | 03 14 | 04 15 | 05 16 | 06 17 | 07 18 | 08 19 | 09 20 | 10 21 | 11 22 | 12 23 005/00 |

MET   Day 004

FD06

STS 134

Crew	Timeline
CDR MARK	SLEEP / POST SLEEP / CWCI CINIT #4 / CTIMWMCU#4 / CWC XFER / MEAL / N2 XFER TERM / CCOND CHG/O / PAO EVENT / EXERCISE
PLT BOX	SLEEP / LOG / POST SLEEP / CCRINST GRPL / OBSS / OUBNSBSEH ROTH F / UNGRP UH/GO RP / FI VIEW / DOUG REVIEW / FOCUSED INSPECTION / SPDM GRPL S/U / SPDM / GCRPL / CCRRMV / MEAL / PAO EVENT
MS1 SPANKY	SLEEP / POST SLEEP / PFC ISS OCA / POST SLEEP / QD MOD / DOUG REVIEW / FOCUSED INSPECTION / EXERCISE / MEAL / PAO EVENT / EVA TOOL CONFIG
MS2 ROBERTO	SLEEP / LOG / POST SLEEP / IENDONOKSG@ / IMMDDLOQIUF~*F / OBSSISH/O / OBSS H/O / OBSS H/O / DOUG REVIEW / FOCUSED INSPECTION / MEAL / LDRI DOWNLINK / PAO EVENT / EXERCISE / LDRI DOWNLINK
MS3 DREW	SLEEP / ASPRN / POST SLEEP / PFC ISS OCA / POST SLEEP / OBSS H/O / STRM ACT / OBSS H/O / EMU SWAP / BIATNTSTL / REBA+ / REBAC/O / E_LK PREP / EXERCISE / MEAL / PAO EVENT / EVA TOOL CONFIG
MS4 TAZ	SLEEP / ALSOPGRNRN / POST SLEEP / CO2 INIT DRY / QD MOD / DRY TERM / EMU SWAP / BIATNTSTL / REBA+ / REBAC/O / E_LK PREP / MEAL / KU CABLE ROUTE / PAO EVENT / EVA TOOL CONFIG

NO EXERCISE   [A]   NO EXERCISE [B]

| DAY/NIGHT | |
| ORBIT | 72 73 74 75 76 77 78 79 |

| TDRS | W E Z |

| ISS | TDRS AVAIL |
| ORB ATT | BIAS -XLV -ZVV |

NOTES
[A] NO EXERCISE [DOUBLE GRAPPLE]   *FILTER CK
[B] NO EXERCISE [FOCUSED INSPECTION]   @STATUS CHECK   +INSTALL
                                          ^STATUS CHECK

GMT 05/21/11 (141)

	13 005/00	14 01	15 02	16 03	17 04	18 05	19 06	20 07	21 08	22 09	23 10	05/22 11	12

MET Day 005

FD06

					ISS EXTERNAL SURVEY		
CDR MARK	EXERCISE	EVA PROC RVW	STORRM*	PRE SLEEP	PMC A/G	PRE SLEEP	OMS^	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP
PLT BOX		EVA PROC RVW	PRE SLEEP	EXERCISE	PRE SLEEP	SLEEP
MS1 SPANKY	EVA TOOL CONFIG	EVA PROC RVW	PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP
MS2 ROBERTO	LDRI DOWNLINK	EVA PROC RVW	MIDDK#N	PRE SLEEP	SLEEP
MS3 DREW	EVA TOOL CONFIG	EVA PROC RVW	PRE SLEEP	MASK PB/TOOL CONFIG	PRE SLEEP	SLEEP
					10.2 DPRS	ISS Airlock Campout at 10.2 PSI	
MS4 TAZ	EVA TOOL CONFIG	EVA PROC RVW	EXERCISE	PRE SLEEP	SLEEP

STS 134

NO EXERCISE

DAY/NIGHT

ORBIT	80	81	82	83	84	85	86	87

TDRS W E Z

ISS TDRS AVAIL

ORB ATT ————————— BIAS -XLV -ZVV —————————

NOTES *DEACT ^ACCUM REPRESS
#STATUS CHECK

STS-134/ULF6 FD06

GMT	T D R S E Z	D O / R N B	MET	A T T	CDR MARK	PLT BOX	MS1 SPANKY	NOTES

GMT
Date
05/21
(141)

MET

Day 004

01:00

02:00

03:00

04:00

12:00

13:00

14:00

15:00

16:00

B
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72

73

74

CDR MARK

SLEEP

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

FD06 EZ ACTIVITIES:
√OCAC Filter
√MDDK Duct Screen
TEPC Status Check:
 Verify display is backlit
Hard reboot: STS-2(WINDECOM),
 STS-3(KFX) & STS-4(RPOP)

SHUTTLE/ISS H2O CONTAINER FILL (HC)
(ORB OPS, ECLS) Perform CWC FILL #4
Ref. MSG 030

PLT BOX

SLEEP

SLEEP LOGBOOK (SDBI 1634)
POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

CSS: 1.111 CUPOLA CREW RESTRAINT OPS Step 5
ROBO:1.310 OBSS UNBERTH AND HANDOFF TO SRMS
 Steps 1-3

MS1 SPANKY

SLEEP

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

Private Family Conference A
ISS S & KU AVAIL (13:45-14:18)

POST-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

A PFC to be performed using S-Band via
   Public Call 4 for audio and KU-Band
   for video. Please call down SSC
   preference before the conference and
   make sure that all applications except
   Netmeeting have been closed.

STS-134/ULF6 FD06

GMT	T D R S Z	D O /R N B	MET	A T T	MS2 ROBERTO	MS3 DREW	MS4 TAZ	NOTES
Date 05/21 (141)	W E Z		Day 004	T T				

GMT times shown left: 01:00, 02:00, 03:00, 04:00

MET times: 12:00, 13:00, 14:00, 15:00, 16:00

ATT: BIAS -XLV -ZVV

MS2 ROBERTO:
- SLEEP
- SLEEP LOGBOOK (SDBI 1634)
- POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)
- IENOS OPS (ASSY OPS, PAYLOADS) Step 1.4
- CGBA STATUS CHK; GLACIER STATUS CHK (CC)
- ILLUMINATOR OPS (CC,TV) ILLUMINATORS OFF-ALL
- L17 Check MCIU filter screen
- OBSS HANDOFF TO SRMS - MNVR TO PRE-GRAPPLE (PDRS, OBSS HANDOFF)
- OBSS HANDOFF TO SRMS - STBD MRL RELEASE (PDRS, OBSS HANDOFF)

MS3 DREW:
- SLEEP
- EVA CREW: TAKE 1 ASPIRIN (325mg)
- POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)
- Private Family Conference [A] ISS S & KU AVAIL (14:19-14:58)
- POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)
- OBSS HANDOFF TO SRMS - MNVR TO PRE-GRAPPLE (PDRS, OBSS HANDOFF)
- STORRM ACT AND DRU POWER DOWN [B]

[A] PFC to be performed using S-Band via Public Call 4 for audio and KU-Band for video. Please call down SSC preference before the conference and make sure that all applications except Netmeeting have been closed.

[B] Ref. MSG 046 Item 7
Ref. MSG 049
Power Down DRU1

MS4 TAZ:
- SLEEP
- SLEEP LOGBOOK (SDBI 1634)
- EVA CREW: TAKE 1 ASPIRIN (325mg)
- POST-SLEEP ACTIVITY (ORB OPS, CREW SYS)
- 2.150 CO2 SENSOR DRYOUT (INIT)
  Steps 3-15,17-20 MCC-H performs Step 1
  For EMU 2 only, stow LiOH in Sys Xfer Bag
- OGS RECIRC LOOP CONTINUOUS REMEDIATION INSTALLATION Step 1
  Ref. MSG 051 and MSG 052
  Ref. Transfer List: Resupply Item 18

STS-134/ULF6 FD06

GMT	T D R S	D O / R	MET	A T T	CDR MARK	PLT BOX	MS1 SPANKY	NOTES

Date 05/21 (141)

W E Z N B

Day 004

05:00

16:00

ROBO:1.310 OBSS UNBERTH AND HANDOFF TO SRMS
Steps 4-6

74

OGS RECIRC LOOP CONTINUOUS
REMEDIATION INSTALLATION
 Step 1
 Ref. MSG 051 and MSG 052
 Ref. Transfer List: Resupply Item 18

NO
EXERCISE
[DOUBLE
GRAPPLE]

IMU STAR OF OPPORTUNITY ALIGN (ORB OPS,GNC)
SHUTTLE/ISS H2O CONTAINER FILL (HC)
 (ORB OPS, ECLS)
 Perform FILL TERMINATION

ROBO:1.310 OBSS UNBERTH AND HANDOFF TO SRMS
Step 7
EXERCISE CONSTRAINT

ROBO: 2.110 FI VIEWING SUPPORT
Steps 1-3

06:00

17:00

75

Transfer CWC to ISS

FOCUSED INSPECTION DOUG REVIEW
 Ref. MSG 055

FOCUSED INSPECTION DOUG REVIEW
 Ref. MSG 055

B
I
A
S

OBSS FOCUSED INSPECTION
 Ref. MSG 055
 EXERCISE CONSTRAINT

OBSS FOCUSED INSPECTION
 Ref. MSG 055
 EXERCISE CONSTRAINT

NO
EXERCISE
[FOCUSED
INSPECTION]

07:00

18:00

-
X
L
V

-
Z
V
V

76

08:00

19:00

77

ROBO: 2.110 FI VIEWING SUPPORT Steps 4-5

MEAL

20:00

STS-134/ULF6 FD06

GMT	TDRS WEZ	DOR/NB	MET	ATT	MS2 ROBERTO	MS3 DREW	MS4 TAZ	NOTES

Date 05/21 (141)

Day 004

05:00

06:00

07:00

08:00

16:00

17:00

18:00

19:00

20:00

74
75
76
77

BIAS
-XLV
-ZVV

MS4 TAZ

OGS RECIRC LOOP CONTINUOUS REMEDIATION INSTALLATION
Step 1
Ref. MSG 051 and MSG 052
Ref. Transfer List: Resupply Item 18

MS2 ROBERTO

OBSS HANDOFF TO SRMS - OBSS GRAPPLE
(PDRS, OBSS HANDOFF)
In Step 2 do not perform LCC DEACTIVATION
EXERCISE CONSTRAINT

MS3 DREW

OBSS HANDOFF TO SRMS - OBSS GRAPPLE
(PDRS, OBSS HANDOFF)
In Step 2 do not perform LCC DEACTIVATION
EXERCISE CONSTRAINT

FOCUSED INSPECTION DOUG REVIEW
Ref. MSG 055

2.150 EMU CO2 SENSOR DRYOUT (TERM)
Steps 21-28, 30-33 MCC-H performs Step 34
For EMU 2 only

OBSS FOCUSED INSPECTION
Ref. MSG 055
EXERCISE CONSTRAINT

EMU SWAP FOR EVA 2
(EVA, AIRLOCK CONFIG)
Ref. STS-134 CONSUMABLES TRACKING CC
Ref. STS-134 NOMINAL EMU SIZING
(EVA, EMU CONTINGENCY PROCS)

EMU SWAP FOR EVA 2
(EVA, AIRLOCK CONFIG)
Ref. STS-134 CONSUMABLES TRACKING CC
Ref. STS-134 NOMINAL EMU SIZING
(EVA, EMU CONTINGENCY PROCS)

ISS EVA SYS: 1.515 EMU METOX/LIOH/BATTERY REPLACEMENT
Ref: STS-134 CONSUMABLES TRACKING CC

ISS EVA SYS: 1.515 EMU METOX/LIOH/BATTERY REPLACEMENT
Ref: STS-134 CONSUMABLES TRACKING CC

ISS EVA SYS:1.307 REBA INSTALLATION/REMOVAL
INSTALLATION C

ISS EVA SYS:1.307 REBA INSTALLATION/REMOVAL
INSTALLATION C

ISS EVA SYSTEMS: 1.403 REBA POWERED HARDWARE CHECKOUT
Perform for EMU 3018

ISS EVA SYSTEMS: 1.403 REBA POWERED HARDWARE CHECKOUT
Perform for EMU 3018

ISS EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP

ISS EVA SYSTEMS: 1.305 EQUIPMENT LOCK PREP

C Ref. STS-134 CONSUMABLES TRACKING CC

MEAL

EXERCISE

MEAL

NOTES

NO EXERCISE [DOUBLE GRAPPLE]

NO EXERCISE [FOCUSED INSPECTION]

STS-134/ULF6 FD06

GMT	T D R S	D O / R	MET	A T T	CDR MARK	PLT BOX	MS1 SPANKY	NOTES
Date 05/21 (141)	W E Z	N B	Day 004					

CDR MARK:
- MEAL
- ON MCC-H GO: JOINT OPS: 3.103 NITROGEN TRANSFER TERM — Steps 3.2-5, MCC-H will perform Step 5.3
- SHUTTLE CONDENSATE COLLECTION (ORB OPS, ECLS) Perform CHANGEOUT Ref. MSG 046 Item 4
- PUBLIC AFFAIRS EVENT ISS S & KU AVAIL: 21:54-22:37 Node 2: All Crew Ref. MSG 053
- EXERCISE

PLT BOX:
- ROBO: 2.110 FI VIEWING SUPPORT Steps 4-5
- ROBO: 1.310 OBSS UNBERTH AND HANDOFF TO SRMS Steps 9-10
- CSS: 1.111 CUPOLA CREW RESTRAINT OPS Step 6
- MEAL
- PUBLIC AFFAIRS EVENT ISS S & KU AVAIL: 21:54-22:37 Node 2: All Crew Ref. MSG 053

MS1 SPANKY:
- EXERCISE
- MEAL
- PUBLIC AFFAIRS EVENT ISS S & KU AVAIL: 21:54-22:37 Node 2: All Crew Ref. MSG 053
- EVA 2 TOOL CONFIGURATION (EVA, TIMELINES) Ref. CONSUMABLES TRACKING CUE CARD Ref. MSG 050

NOTES:
- UPLINK β21+Mask Box 40,41

GMT times: 09:00, 10:00, 11:00, 12:00
MET times: 20:00, 21:00, 22:00, 23:00, 00:00

ATT: BIAS -XLV -ZVV

STS-134/ULF6 FD06

GMT	TDRS	D O	MET	A	MS2	MS3	MS4	NOTES
		/R		T	ROBERTO	DREW	TAZ	

GMT
T D R S
D O /R N B
MET
A T T

Date
05/21
(141)

W E Z

Day 004

20:00

09:00

MEAL | EXERCISE | MEAL

DIGITAL VIA VTR LDRI Surveys
(CUE CARD, DIGITAL PLAYBACK)
KU TDRW (20:39-20:56)
KU TDRE (20:58-21:06)

KU-BAND COAX DATA CABLE ROUTING - PART 3
Ref. MSG 057 and MSG 058
Ref. MSG 046 Item 9

21:00

10:00

MEAL

B I A S - X L V - Z V V

22:00

11:00

PUBLIC AFFAIRS EVENT
ISS S & KU AVAIL: 21:54-22:37
Node 2: All Crew
Ref. MSG 053

PUBLIC AFFAIRS EVENT
ISS S & KU AVAIL: 21:54-22:37
Node 2: All Crew
Ref. MSG 053

PUBLIC AFFAIRS EVENT
ISS S & KU AVAIL: 21:54-22:37
Node 2: All Crew
Ref. MSG 053

EVA 2 TOOL CONFIGURATION
(EVA, TIMELINES)
Ref. CONSUMABLES TRACKING CUE CARD
Ref. MSG 050

EVA 2 TOOL CONFIGURATION
(EVA, TIMELINES)
Ref. CONSUMABLES TRACKING CUE CARD
Ref. MSG 050

23:00

12:00

EXERCISE

DIGITAL VIA VTR
(CUE CARD, DIGITAL PLAYBACK)
LDRI Surveys
KU TDRW (23:44-00:13)

00:00

STS-134/ULF6 FD06

GMT	T D R S	D O /R	MET	A T	CDR MARK	PLT BOX	MS1 SPANKY	NOTES

Date
05/21
(141)

W E Z N B   Day 005

~ ~ ~

13:00

EXERCISE

~ EVA 2 TOOL CONFIGURATION
(EVA, TIMELINES)
Ref. CONSUMABLES TRACKING CUE CARD
Ref. MSG 050

8 0

EVA 2 PROCEDURE REVIEW
Ref. EVA 2 BRIEFING CARD
(EVA, TIMELINES)
Ref. MSG 050

EVA 2 PROCEDURE REVIEW
Ref. EVA 2 BRIEFING CARD
(EVA, TIMELINES)
Ref. MSG 050

EVA 2 PROCEDURE REVIEW
Ref. EVA 2 BRIEFING CARD
(EVA, TIMELINES)
Ref. MSG 050

01:00

14:00

STORRM DAILY DEACT (CUE CARD)
PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

B I A S

- X L V

02:00

15:00

Z L9 PS AUD A/G 1,2 (two) - OFF
V PRIVATE MEDICAL CONFERENCE
V Private Conference via A/G 2

EXERCISE

8 1

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

L OMS ACCUMULATOR REPRESS D
ISS EVA SYSTEMS: 1.206 10.2 PSIA CAMPOUT
MASK PREBREATHE
 MCC-H performs steps 1, 19

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

ISS EVA SYSTEMS: 1.206 10.2 PSIA CAMPOUT
MASK PREBREATHE
 MCC-H performs steps 1, 19

03:00

16:00

D C3 OMS ENG LEFT - ARM/PRESS (Wait 5 Seconds)
       - OFF

8 2

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

~ ~ ~   **04:00**   ~ ~ ~

STS-134/ULF6 FD06

GMT	T D R S E Z	D O / R N B	MET	A T T	MS2 ROBERTO	MS3 DREW	MS4 TAZ	NOTES

Date
05/21
(141)   W

Day 005

00:00

13:00

DIGITAL VIA VTR
(CUE CARD, DIGITAL PLAYBACK)
LDRI Surveys
KU TDRW (23:44-00:13)

EVA 2 TOOL CONFIGURATION
(EVA, TIMELINES)
Ref. CONSUMABLES TRACKING CUE CARD
Ref. MSG 050

EVA 2 TOOL CONFIGURATION
(EVA, TIMELINES)
Ref. CONSUMABLES TRACKING CUE CARD
Ref. MSG 050

EVA 2 PROCEDURE REVIEW
Ref. EVA 2 BRIEFING CARD
(EVA, TIMELINES)
Ref. MSG 050

EVA 2 PROCEDURE REVIEW
Ref. EVA 2 BRIEFING CARD
(EVA, TIMELINES)
Ref. MSG 050

EVA 2 PROCEDURE REVIEW
Ref. EVA 2 BRIEFING CARD
(EVA, TIMELINES)
Ref. MSG 050

01:00

14:00

CGBA STATUS CHK; GLACIER STATUS CHK (CC)
ILLUMINATOR OPS (CC,TV) ILLUMINATORS ON-A,D
PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

B I A S - X L V - Z V V

EXERCISE

02:00

15:00

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

03:00

16:00

ISS EVA SYSTEMS: 1.206 10.2 PSIA CAMPOUT
MASK PREBREATHE
MCC-H performs steps 1, 19

04:00

80
81
82

STS-134/ULF6 FD06

GMT Date 05/21 (141)	T D R S E W Z	D O / R N B	MET Day 005	A T T	CDR MARK	PLT BOX	MS1 SPANKY	NOTES

PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)   PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)   PRE-SLEEP ACTIVITY (ORB OPS, CREW SYS)

CREW WAKE AT 05/12:30

ATT: BIAS -XLV -ZVV

SLEEP   SLEEP   SLEEP

17:00 04:00
18:00 05:00
19:00 06:00
20:00 07:00
       08:00

STS-134/ULF6 FD06

GMT	T D R S		MET	A T	MS2 ROBERTO	MS3 DREW	MS4 TAZ	NOTES
Date 05/21 (141)	W E	Z	D O / R N B	T				

Day 005

04:00

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

PRE-SLEEP ACTIVITY
(ORB OPS, CREW SYS)

17:00

8
2

| CREW WAKE AT 05/12:30 |

18:00

05:00

8
3

B
I
A
S

06:00

- X
L
V

19:00

- Z
V
V

SLEEP

SLEEP

SLEEP

8
4

20:00

07:00

8
5

08:00

1   Good Morning Endeavour!!!!

2

3   This morning you will be doing focused inspection.

4

5   Yesterday's EVA was outstanding! Thanks!

6

7   YOUR CURRENT ORBIT IS: 187 X 183 NM

8

9   NOTAMS -

10

11   EDW -   EDW 22L/04R IN USE. EDT 22R/04L EMERGENCY DAY USE ONLY.
12   EDW -   LAKEBED RWYS RED.
13   NOR -   LAKEBED RWYS GREEN.
14   HNL -   RWY 08R/26L CLSD
15   NTU -   RWY 05R/23L CLSD.
16   FFA -   NOT USABLE. IN CARETAKER STATUS.
17   LAJ -   RWY WIDTH REDUCED TO 154' - EAST SIDE OF RWY CLSD.
18   BEN -   NOT USABLE. NOT SUPPORTED.
19   IKF -   NOT USABLE. NO AGREEMENT

20

21   NEXT 2 PLS OPPORTUNITIES:

22

23   EDW22 ORB 79 – 4/23:22 SCT 250 7 240/06P08
24   NOR17 ORB 94 – 5/22:12 SKC 7 150/06P08

25

26   OMS TANK FAIL CAPABILITY:

27

28   NO

29

30   LEAKING OMS PRPLT BURN:

31

32   L or R OMS LEAK: ALWAYS BURN RETROGRADE

33

34   OMS QUANTITIES(%) (POST Ti)

35

36   L OMS OX = 33.23   R OMS OX = 34.28
37   FU = 33.24   FU = 33.95

38

39   FOR CURRENT QTYS, SUBTRACT INCN'T COUNTER

40

41   DELTA V AVAILABLE:

42

43   OMS   345 FPS
44   ARCS (TOTAL ABOVE QTY1)   46 FPS

45

46   TOTAL IN THE AFT   391 FPS

47

48   ARCS (TOTAL ABOVE QTY2)   80 FPS
49   FRCS (ABOVE QTY 1)   31 FPS

50

51   AFT QTY 1   82 %
52   AFT QTY 2   44 %

END OF PAGE 1 OF 2, MSG 047

1   Failure Impact Work Around Follows:

2
3

SYSTEM #	FAILURE	IMPACT	WORK AROUND
EVA	EMU 3005 CO2 Sensor	EVA CCC capactiy availability reduced by 1000 BTUs.	Will perform ISS EVA SYS: 2.150 CO2 Sensor Dryout in attempt to recover. Still go for EVA with failed sensor
EVA	Biomed Sensor electrode from EMU 3005	No valid biomed signal from crew. Go for EVA without biomed if required	Check electrode application. Keep TCV at a comfortable setting.

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1 Good morning Roberto & Mark!

2 Thanks for the great calldown last night. You guys are doing a fantastic job!

3 **Comments from FD05 Calldown**

4 • We notice that you did not call Items 406 and 406.1 complete. We want to clarify that
5 you are GO to transfer that bag at any time, but please verify that those tapes have
6 been added to the bag prior to transfer. We gave Cady a GO to put the tapes in that
7 bag but have not heard back that was completed.

8 • Mark mentioned during the FD04 calldown that items 727.1 and 727.2 (120GB USB
9 Hard Drive and cable) were not transferred. We originally added these items to the
10 Transfer List per request from Greg Chamitoff. These items are planned for return,
11 so please let us know if you will not be using/returning them.

12 • You mentioned that you temp stowed the In-Flight Refill Unit (Item 32.3) in NOD2D2,
13 rather than putting it in PMM1P4_G2. Was there a reason that item didn't make it to
14 the PMM (i.e. did it not fit)?

15 • Just before launch, Spanky had requested information about the location of the OGS
16 hardware he'd need for the QD MOD activity he has scheduled today. He was
17 inadvertently given the incorrect information. The actual location of the hardware is
18 at PMM1S4 Rack Front, in 1.0 CTB s/n 1092, labeled CHECS/PAYLOADS. This
19 information is reflected in the Stowage Note that has printed as part of this Execute
20 Package.

21
22 There are no updated pages of the Transfer List and no choreography today. Enjoy your
23 Transfer-Free Day!
24
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SSP2   1. STORRM AVIONICS PWR – ON (tb-gray)
PGSC   2. STORRM PGSC pwr – on
        3. Select Shuttle Apps icon
           Select STORRM folder
           Select STORRM icon
        4. √System Mode = Initialization, then Idle (~2 min)

<div align="center">NOTE
STORRM application window must be selected
in order for the step 6 to operate correctly</div>

        5. Select STORRM application window
        6. After 1 min:
            MODE Select → DATA RETRIEVAL → Accept MODE
        7. √System Mode = Data Retrieval
        8. Power off DRU3 (1):

            8.1   Select [F10] Commanding Screen
            8.2   Switch Range Selection from Auto to Manual

<div align="center">NOTE
Expect PGSC alert if in Manual for more than 1 min</div>

            8.3   Unlock rocker switch in upper right corner
            8.4   In PDU Commands drop down window select PDU_DRU3_OFF
                    (PDU_DRU1_OFF) per Detailed Timeline callout
            8.5   Click SEND PDU CMD
            8.6   Relock rocker switch in upper right corner
            8.7   Switch Range Selection to from Manual to Auto
            8.8   √Only PDU alert and possible PGSC alert on the Alerts Bar

```
*  If any alerts other than PDU and PGSC alert on      *
*   Alerts Bar:                                        *
*      Select [F2] Alerts Page                         *
*      Check cable connections but do not disconnect   *
*      Select [Clear All] to clear alerts              *
*      Wait 1 min                                      *
*      If alert still present, √MCC                    *
*                                                      *
```

            8.9   Select [F1] Main Screen

        9. Notify MCC, STORRM ACT complete

1   **FD6 - EVA Deltas**

2

3   EVA Flight Data File Updates:

4   1) Please make the following EVA Systems Pen & Ink changes:

5

6   o Update Consumables Tracking cue card and Shuttle EVA C/L page FS
7   CC 10-15 to :
8   ▪ Change LiOH for EVA 2 to show LiOH 2030 in FN EMU (not FT
9   EMU) and move the 20___ line to FT (swap LiOH entries for
10   EVA 2)
11   ▪ Change Metox for Campout for EVA 4 from canister 21 to 22.
12   o In STS-134 NOMINAL EMU SIZING (EVA, EMU CONT PROCS) for
13   Chamitoff, on page FS 12-29, update Boots s/n from 230 to 234.
14   o In EMU CONTINGENCY RESIZE MATRIX (STS-134/ULF6) (EVA,
15   EMU CONT PROCS), on page FS 12-30 for all 3 EV crew, under
16   LOSS OF BOOT, update s/n boots s/n 234 to 232.

17

18   SCU1 Pouch Check:

19   2) Prior to EVA 2, please check the adjustable tether and pouch velcro on SCU
20   1 (double red stripes) to determine any issues with the SCU staying in the
21   pouch.

22

23   CO2 Sensor Dryout

24   3) Taz is scheduled to run the EMU CO2 Sensor Dryout procedure on his suit
25   EMU 3005. This will run the suit pressurized for over an hour to force dry O2
26   past the CO2 sensor in an attempt to recover the sensor. The suit is still go
27   for EVA without a CO2 sensor.

28

29   EVA 2 Tool Configuration:

30   4) During EVA 1 Tool Configuration, a 7/16 (wobble) Socket-6 ext for the PGT in
31   the EVA Staging Bag could not be located. Please check the following
32   locations for the missing socket:
33   a. Mesh Bag labeled Pre ULF-6. (Note: This bag should have been
34   emptied prior to ULF-6 and may have been stowed with the other
35   empty mesh bags)
36   b. 1.0 CTB EVA Misc Tools #2 (s/n 1161) A/L1O0 behind closeout
37   (may be deployed in A/L)

38

39   NOTE: If the socket cannot be located, the desired configuration is:
40   o EV 1 PGT - 7/16 (wobble) Socket-6 ext installed; PGT stowed in SARJ
41   ORU bag
42   o EV 2 PGT - 7/16 (wobble) Socket-6 ext installed; stowed on MWS
43   swing arm (R)
44   o IV Bag socket caddy - 7/16 (wobble) Socket-6 ext installed
45   o Staging Bag PGT - No socket

- In the event of a PGT failure, you will perform a socket swap to the spare PGT
- In the event of a socket failure, another spare socket is in Z1 STBD Tool Box, slot 3

Report final config to **MCC-H**.

5) The remainder of the EWC Antenna Cable task is being considered for inclusion in EVA 3, so we would like to keep the MMOD shield tools available. For EVA Tool Config place the T handle tools (2) and Loop Pin Puller in the 'EVA 3 Tools' Mesh bag instead of the 'Done' mesh bag.

EVA 2 Procedure Review:
6) In the case of a PCU failure, we may no longer have to shunt the arrays. On page FS 7-59, please update the PCU inhibit as follows: (Same as EVA1. You will also see this update for EVA 3 & 4)
Was:
PCU *(PHALCON: Prior to Egress)*
<u>NOTE</u>
PCUs may require up to a 1-hr warmup period before they are operational

MCC-H   1. √PCUs (two) operational in discharge mode and one of the following:
a. CCS PCU EVA hazard control FDIR enabled
b. No more than two arrays unshunted and oriented $< 105^0$ from velocity vector
If one or both PCUs failed
2. No more than two arrays unshunted and oriented $< 105^0$ from velocity vector

IS:
PCU *(PHALCON: Prior to Egress)*
<u>NOTE</u>
PCUs may require up to a 1-hr warmup period before they are operational

MCC-H   1. √PCUs (two) operational in discharge mode and one of the following:
a. CCS PCU EVA hazard control FDIR enabled
b. Only allowed arrays unshunted and oriented $< 105^0$ from velocity vector
If one or both PCUs failed
2. Only allowed arrays unshunted and oriented $< 105^0$ from velocity vector

7) Drew - Since you stowed the VTE nozzle and the L bracket separately during EVA1, please make the following Pen and Ink update to EVA 2 (EVA, Timelines) Page 7-73, step 13.
WAS: 1. Retrieve and attach MUT EE to P6 HR 5321 (straight on HR)
❏ √Locked
❏ Clock L-bracket so it is parallel to HR

IS: 2. Retrieve and attach MUT EE to P6 HR 5321 (straight on HR)
❏ √Locked
❏ Attach L-bracket to VTE nozzle and Clock L bracket so it is parallel to HR
❏ Attach french hook from VTE nozzle to L bracket

8) Taz – the P1-P5 Jumper Vent Eclipse Constraint Workaround procedure is in SODF: ASSY OPS: 1.106. The latest version is dated 6 APR 11.

9) Drew, Mike, and Taz,
Desats need to be enabled while moving the SARJ for the PSARJ Lube.   If a Desat is imminent during the LEE Lube Task, MCC-H will call up ~2 minutes prior to the Desat to remove your hands and tools from the LEE. During a Desat the SPDM LEE can move 3-6 cm.

IRU Troubleshooting
10) Mark, Ron & Paolo, thanks for the IRU troubleshooting work. We believe that after changing out the PWRs the pump was working but needed to be primed. The bear hug and using the suit to pressurize the line (per the IRU troubleshooting procedure) not only helped prime the pump, but along with additional pressure readings provided the needed info to help us troubleshoot past pump problems.

Glove Review
11) The glove photos have been reviewed and are go for EVA with no constraints.

Big Picture Words

Overview
On GMT 143-146, you'll be performing several activities to install a filter assembly inside the OGS rack to provide continuous scrubbing capability whenever the OGS recirculation loop is running. Below is a short description of each of the tasks involved.

Jumper QD Modification
Before installing the filter and jumpers inside the OGS rack, one of the two jumpers needs to be modified to change one of the QD's from a 1/4"QD to a 3/8" QD. There was a QD Adapter flown for this purpose but unfortunately data gathered from a flow test on-orbit showed that there is too much flow restriction inside the QD Adapter for the OGS to be able to run in a good config.

The new 3/8" Male QD, with associated metal conical seals, is arriving on ULF6. Removing the current 1/4" QD and installing the new 3/8" QD will involve high torques, so feel free to secure the jumper as needed during these steps. We suggest securing it to an MWA Work Surface Area with accessories from the MWA Utility Kit.

The 1/4" QD that is removed will be used in the second task, to provide thermal compliance for another piece of hardware (OGA Remediation Adapter) during stowage.

Remediation Hardware Installation
Once the jumper is modified, you'll be ready to install both jumpers and the Silver Removal Cartridge (also known as an ACTEX filter) inside the rack. The entire assembly will be installed in-line at the QD from the OGS Heat Exchange to the Pump ORU. There is not unfortunately enough free space right near the Pump ORU, so we'll utilize some empty volume on the left side of the rack under the AAA and RPCM ORUs, then route the jumpers back to the right side of the rack for final connection.

PMP TO HX QD on Pump ORU

DIW TO HX Jumper

Modified OGA Filter to HX Jumper

OGA Pump to ACTEX Jumper

Silver Removal Cartridge

Luer-Lock Adapter
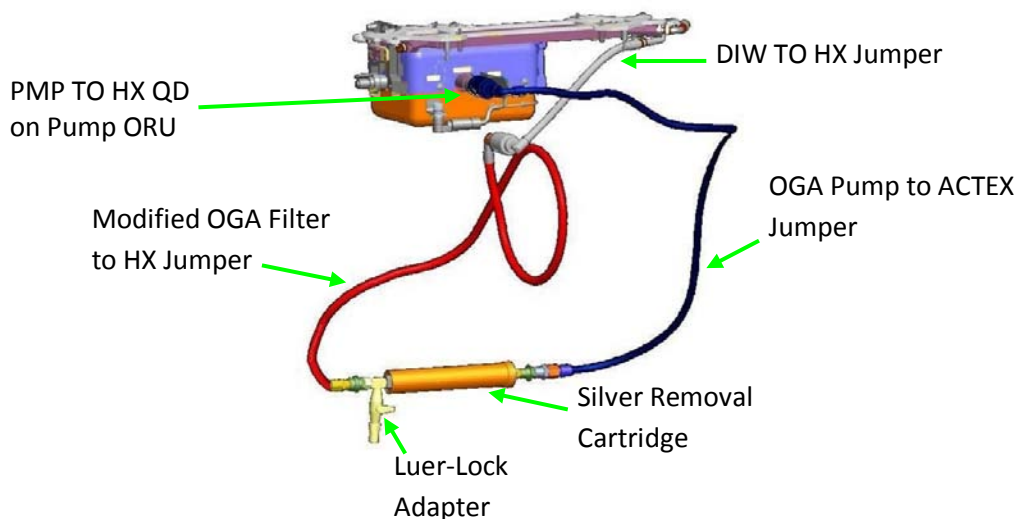
Figure 1. - Configuration of Remediation Hardware when connected
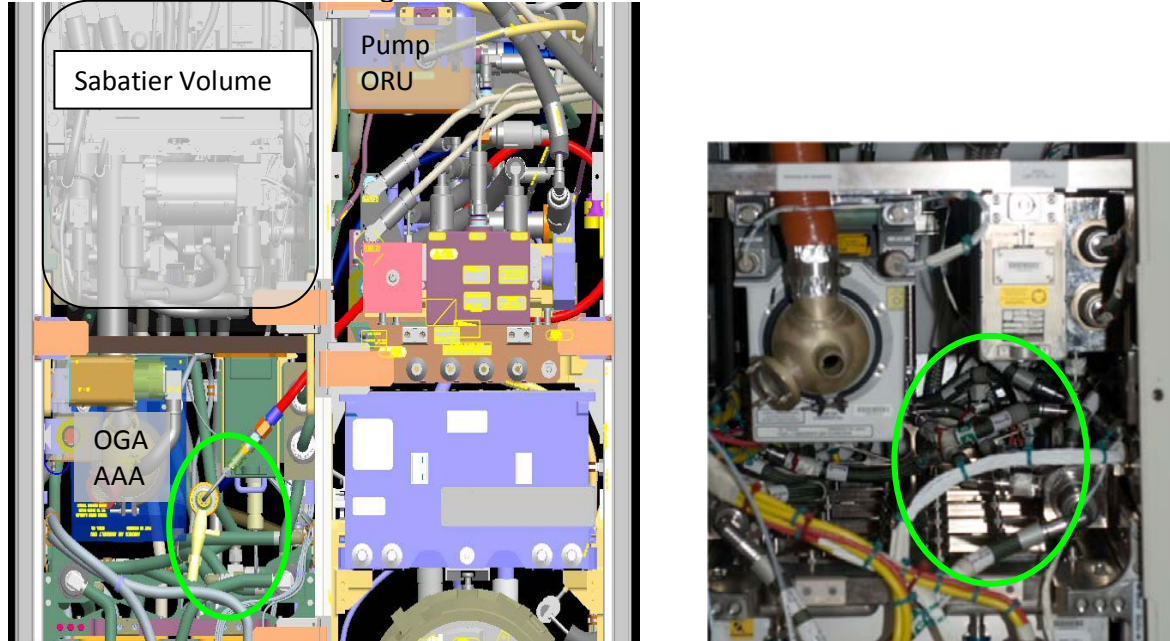
Figure 2. - Model and actual view of target location for Silver Removal Cartridge.

As you can see in Figures 1 and 2, it'll be a rat's nest inside the rack. The rack owners have done their best to provide a recommendation where we think the hardware will fit without impacting other ORUs and jumpers. The procedure is written such that the Silver Removal Cartridge and two jumpers are assembled then routed inside the rack, but if it is easier to install them piece-meal that's fine as well.

A few items to note:
- The Silver Removal Cartridge has a syringe mated to the Luer-Lock Adapter for thermal compliance. This syringe can be removed for up to 10 minutes at a time to make installation easier.
- Do not make the final connection at the Pump ORU until all the remediation hardware is installed and connected. The Pump ORU also has a 10-minute thermal clock and the best way around that is to do that final QD connection last.
- It is highly desired to have the Luer-Lock Adapter, in the final installation location, accessible via the front of the rack (i.e. just by opening the left front rack door). This will allow us to avoid having to rotate the rack every time we need an OGS Recirc Loop sample, which is a substantial impact to the timeline and T2. The procedure includes a step which asks you to verify that a 30cc Syringe can be connected to the Luer-Lock Adapter with the plunger drawn back without any structural interference.
- 8" Wire Ties may be used as needed to secure the hardware in place but this is not required.

This will be the final task for GMT 144, so the rack panels will be reinstalled and the rack rotated up. The Node 3 TOCA N2 Hose can remain uninstalled until final closeout on GMT 146.

Leak Checks
Just after crew wake on GMT 146, MCC-H will begin activation of the OGS rack and bring the Recirc Loop up to pressure. One of the first tasks of the day will be to open the rack enough to provide visibility to the modified 3/8" QD to verify that the newly installed QD and seal aren't leaking. The hope is that they will be visible simply by opening the left front rack door, but steps and time are provided to rotate the rack if needed.

Once the first leak check is passed, we'll let the Recirc Loop dwell at pressure for 3 hours, and then you'll repeat the leak check to verify no visible water at the modified QD. Once that is complete, you'll be go to do a final closeout of the rack.

You won't have any more tasks, but MCC-H will be running a flow test to ensure that the newly installed hardware will support Recirc Loop pressures that are within system tolerances.

**27-0431 (MSG 052) OGS RECIRC LOOP CONTINUOUS REMEDIATION
 INSTALLATION**

OBJECTIVE

Install a Silver Removal Cartridge and associated jumpers in the OGS rack to support continuous scrubbing of the OGS Recirculation Loop. This task can be broken into two sub-tasks.

1. Jumper QD Modification - One of the jumpers will have a 1/4" QD swapped out for a 3/8" QD in order to connect directly to the Silver Removal Cartridge.
2. Remediation Installation - Routing the jumpers and Silver Removal Cartridge inside the OGS rack, finalizing connections, and performing leak checks after system pressurization.

LOCATION

Jumper QD Modification
  MWA or similar worksite

Remediation Installation
  OGS - NOD3A5

DURATION

Jumper QD Modification
  1 hr 30 min Crew
    15 min   Part Gather
    1 hr   Jumper QD Modification
    15 min   Task Closeout

Remediation Installation
  9 hrs 25 min Total (cool down not included): 3 hr 45 min Crew, 5 hrs 40 min **MCC-H**
    45 min   Access NOD3A5
    2 hr   Remediation Installation
    2 hr 30 min OGS Full Activation (**MCC-H**)
    10 min   Visual Leak Check #1
    3 hr   Pressurized Dwell (**MCC-H**)
    10 min   Visual Leak Check #2
    40 min   Closeout
    1 hr 30 min OGS Flow Test (**MCC-H**)
    10 min   OGS Flow Terminate (**MCC-H**)

CREW

Two - Jumper QD Modification, Remediation Installation
One - Access, Leak Checks, Closeout

PARTS

Jumper QD Modification - step 1
    OGA Filter to HX Jumper P/N SV825600CT015
    OGA 3/8" Male QD P/N SEG33123120-301
    MCV CV Inlet Conical Seal P/N SV827421-6
    MWA Utility Kit
        ORU Clamps, Track Restraints as desired to secure Jumper to MWA Work Surface Area

26 OCT 09

Remediation Installation - steps 2 to end
    Silver Removal Cartridge   P/N SEG11100313-311
    OGA Pump to ACTEX Jumper P/N SV825600CT014
    OGA Filter to HX Jumper P/N SEG33123138-301
    8" Wire Tie P/N T30M2HALC2

MATERIALS
Jumper QD Modification - step 1
    Nitrile Gloves
    Towel
    Sharpie
    Drink Bag (new) - if required

Remediation Installation - steps 2 to end
    Nitrile Gloves
    Towel

TOOLS:
Jumper QD Modification - step 1
    Digital Camera
    ISS IVA Toolbox:
    Drawer 1:
        1" Combination Wrench
        7/8" Combination Wrench
        1" Crowfoot, 3/8" Drive
    Drawer 3:
        (200-1000 in-lbs) Trq Wrench, 3/8" Drive
    Drawer 5:
        8-1/4" Long, 2" Cut Scissors

Remediation Installation - steps 2 to end
    Digital Camera
    Timer
    CSA-O2
    Goggles
    ISS IVA Toolbox:
    Drawer 2:
        Ratchet, 1/4" Drive
        5/32" Hex Head, 1/4" Drive

1. <u>JUMPER QD MODIFICATION</u>

<u>NOTE</u>
1. The 1/4" Shuttle-style QD on one end of the OGA Filter to HX Jumper will be removed and replaced with a 3/8" QD of the same style.

2. The removed 1/4" QD will be retained and later mated to another piece of hardware to provide thermal compliance during stowage.

3. Removing and replacing the jumper QD will involve high torques so it may be desired to secure the jumper at an MWA Work Surface Area.

Figure 1. - OGA Filter to HX Jumper

1" Hex Fitting on
1/4" QD

7/8" Hex Fitting on
Jumper
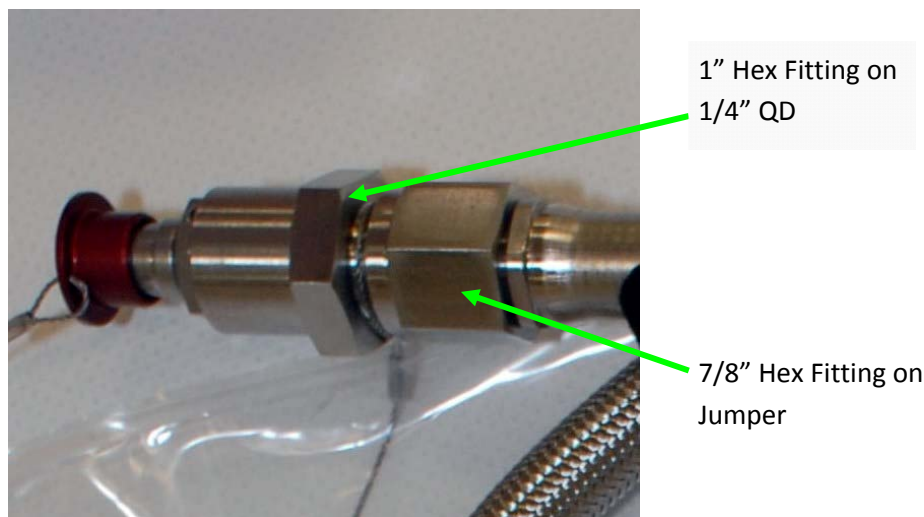
Figure 2. - 1/4" Shuttle-style QD "To EMU 3-Micron Filter"

1.1   If desired to react high torques, secure 1/4" QD of OGA Filter to HX Jumper
       on MWA Work Surface Area.

CAUTION
There is a conical metal seal that may become free after loosening the 1/4" QD from the jumper.

1.2   Removing 1/4" QD
       Refer to Figures 1 and 2.

   1.2.1   Expecting a break-torque on the order of 450 in-lb, loosen 1/4" QD
                from the OGA Filter to HX Jumper (1" Combination Wrench; 7/8"
                Combination Wrench).
                Use towel as required to capture any free water.

   1.2.2   Remove 1/4" QD from OGA Filter to HX Jumper, capturing metal
                conical seal if released.
                Temporarily stow 1/4" QD.

   1.2.3   If metal conical seal not released, inspect inner seals of 1/4" QD
                and OGA Filter to HX Jumper fittings.
                Remove metal conical seal, temporarily stow.

1.3   Estimating Water Loss
   1.3.1   Inspect open fitting of OGA Filter to HX Jumper for level of water
                remaining in jumper.

   1.3.2   If more than 8 cubic inches (a sphere of water approximately 1.2"
                in diameter) has been released from the jumper, add PWD water
                to top of open jumper fitting (new Drink Bag).

Interface for
MCV CV Inlet
Conical Seal

Figure 3. - OGA 3/8" Male QD

1.4 Installing OGA 3/8" Male QD
Refer to Figure 3.

1.4.1 Remove OGA 3/8" Male QD from packaging, inspect for FOD or damage.

1.4.2 Remove one (1) MCV CV Inlet Conical Seal from packaging, inspect for FOD or damage.

1.4.3 Place MCV CV Inlet Conical Seal onto seal interface of OGA 3/8" Male QD.

1.4.4 Insert OGA 3/8" Male QD with MCV CV Inlet Conical Seal into fitting of OGA Filter to HX Jumper.

1.4.5 Slowly hand tighten OGA 3/8" Male QD to OGA Filter to HX Jumper to ensure MCV CV Inlet Conical Seal seats properly.

1.4.6 Torque OGA 3/8" Male QD to OGA Filter to HX Jumper to 425 in-lbs [7/8" Combination Wrench; 1" Crowfoot, 3/8" Drive; (200-1000 in-lbs) Trq Wrench, 3/8" Drive]

1.5 Updating Jumper Labels
Refer to Figure 1.

1.5.1 Strike through P/N on Jumper Label, add new P/N "SEG33123138-301" (Sharpie).

1.5.2 Remove QD Label "OGA Filter to HX Jumper: To EMU 3-Micron Filter" (8-1/4" Long, 2" Cut Scissors).

1.6 Photodocument OGA Filter to HX Jumper.

2. SAFING
    2.1 √**MCC-H** to confirm the following:
        OGS Rack cool down time has elapsed per B17-21E
        OGS Rack AAA active
        OGS Rack MTL flowing
        OGA Process Command Status - Stop or Shutdown

3. NOD3A5 RACK ACCESS PREP

> **NOTE**
> 1. TOCA is mounted to WRS1 (NOD3D5) Rack face on EDV Seat Track Brackets (two) and may prevent OGS (NOD3A5) from rotating fully. This task will require the OGS rack to be rotated partially down to access a QD at the upper rear of the rack. Temporary removal of TOCA will be left to crew discretion.
>
> 2. The Node 3 TOCA N2 Hose at the OGS Rack UIP is at risk for hardware damage during OGS rack rotation and will be disconnected for duration of task. However, since OGS requires an N2 connection during activation, the N2 hose will be temporarily mated directly to the OGS UIP.
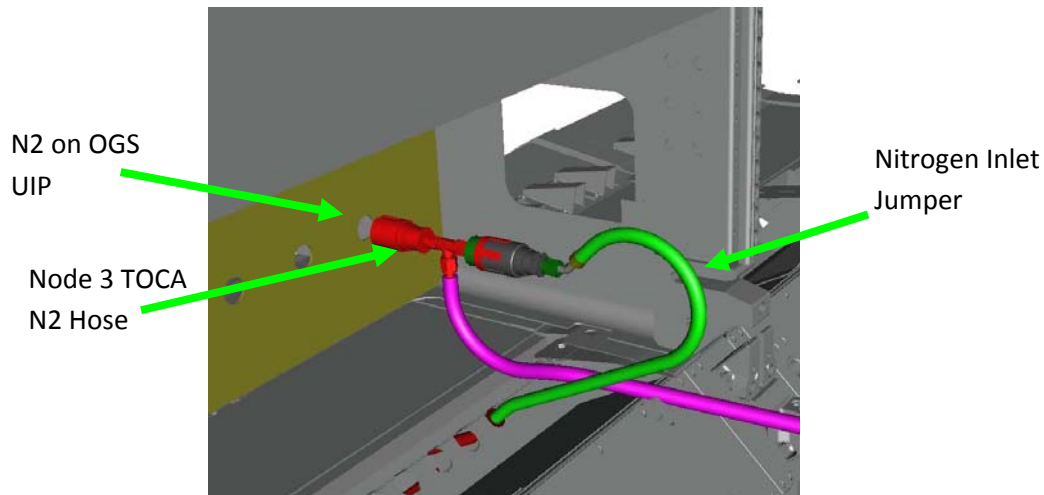
Figure 4.- Node 3 TOCA N2 Hose installed at NOD3A5 UIP

T2   3.1 √ Orange Snubber Alignment Guides (four) installed on T2.
                 Ensure T2 Display clear of T2 Handrail.
                 Remove T2 Handrail, temporarily stow away from OGS Rack rotation path.

NOD3A5   3.2 Remove UIP Closeout from Rack, 1/4 Turn Fasteners, Velcro.
UIP

            3.3 Node 3 TOCA N2 Hose (female end) ←|→ N2 on OGS UIP
                 Refer to Figure 4.

            3.4 Nitrogen Inlet Jumper ←|→ Node 3 TOCA N2 Hose (male end)

3.5 Nitrogen Inlet Jumper →|← N2 on OGS UIP

3.6 Temporarily secure Node 3 TOCA N2 Hose out of rack rotation path.

3.7 Reattach UIP Closeout to Rack, 1/4 Turn Fasteners (two), Velcro.

CAUTION
When removing TOCA from the rack, the Node 3 TOCA N2 hose, TOCA Water Sample Hose, and TOCA Power Cable should maintain a minimum bend radius of 9 inches. Water Sample Hose is most sensitive at flexible to rigid interfaces.

TOCA   3.8 If desired to temporarily remove TOCA for clearance,
√ TOCA Main Power - OFF
Unscrew ЕДВ Mount Assembly – Seat Track Bracket knobs (four) and remove TOCA from WRS 1 Rack.

3.9 Perform CSA-O2 sampling in open cabin, Verify O2% within Nominal Range specified per CSA-O2 decal.

4. ACCESS
T2   4.1 T2 Config - If not already complete
√ Orange Snubber Alignment Guides (four) installed on T2.
Ensure T2 Display clear of T2 Handrail.
Remove T2 Handrail, temporarily stow away from OGS Rack rotation path.

Rack Front   4.2 Open both right and left front rack doors, secure open.

CAUTION
Do not allow Rack umbilicals to over-extend, which may cause damage to other umbilicals or their mating interface.

4.3 Disengage Rack K-BAR thumb latches (two) from standoff.
Slowly rotate Rack down to a controlled stop.

Rack Side   4.4 Remove upper right Side Rack Access Panel, fasteners (eight) (Ratchet, 1/4"; 5/32" Hex Head).
Temporarily stow panel.

Rack Rear   4.5 Remove Rear Rack Access Panel, fasteners (eight) (Ratchet, 1/4"; 5/32" Hex Head).
Temporarily stow panel.

4.6 Perform CSA-O2 sampling in OGS Rack volume for 1 minute. Verify O2% within Nominal Range specified per CSA-O2 decal.

5. REMEDIATION INSTALLATION PREP
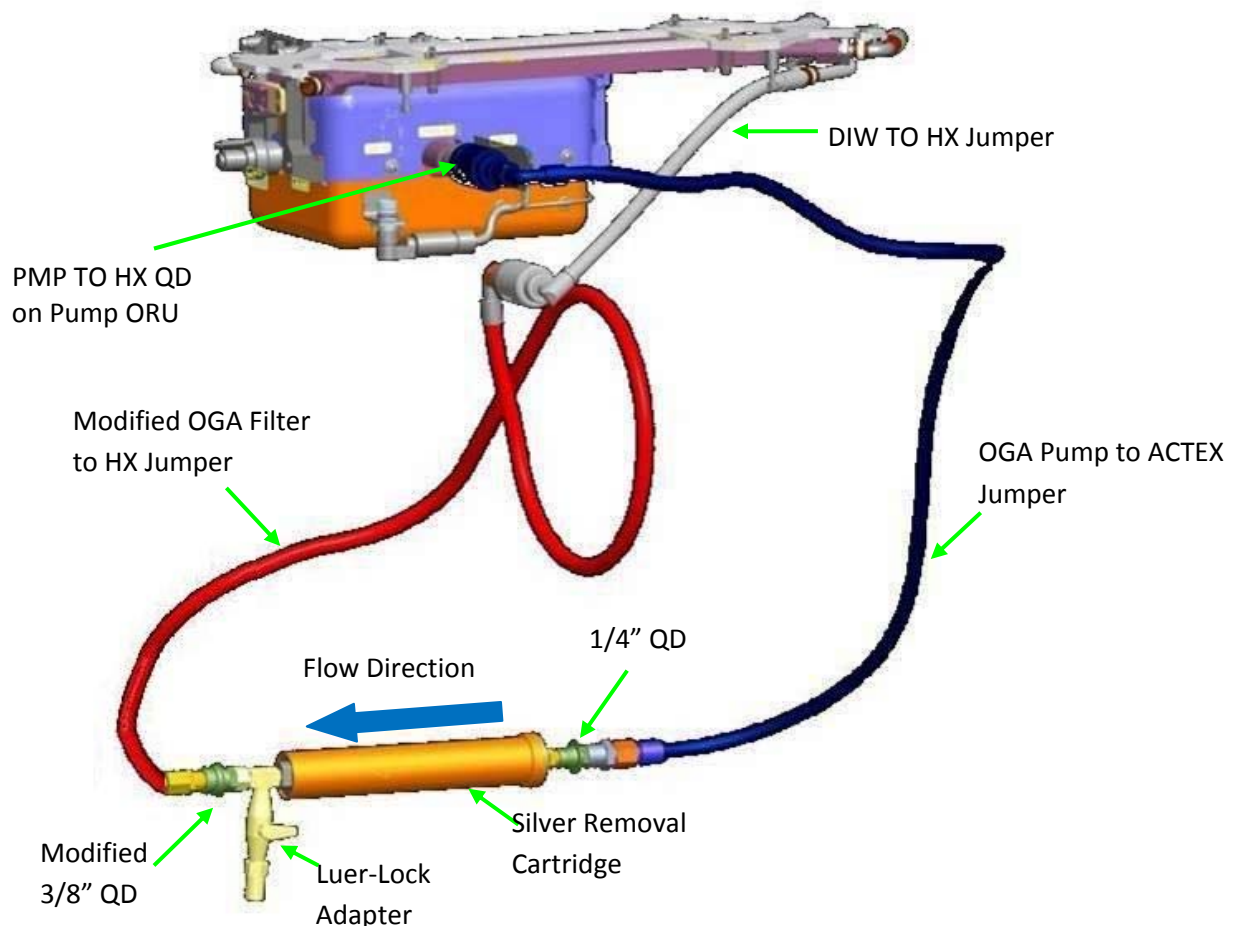
Figure 5.- Configuration of Remediation Hardware when connected

---

NOTE

1. The parts required for installation of remediation hardware include the OGA Pump to ACTEX Jumper, the OGA Filter to HX Jumper (modified per earlier step with new QD size) and the Silver Removal Cartridge (also known as an ACTEX cartridge) which will need to be disassembled from a previous task.

2. The Silver Removal Cartridge remained connected to the OGA Remediation Adapter to provide thermal compliance to the Adapter during stowage. The Silver Removal Cartridge has a 30cc Syringe attached at the Luer-Lock Adapter to act as a thermal bellows.

3. The OGA Remediation Adapter is not required for this configuration. Upon disassembly from the Silver Removal Cartridge, the 1/4" QD removed from the OGA Filter to HX Jumper will be mated to it, which will provide thermal compliance since the QD is open.

Figure 6. - OGA Remediation Adapter
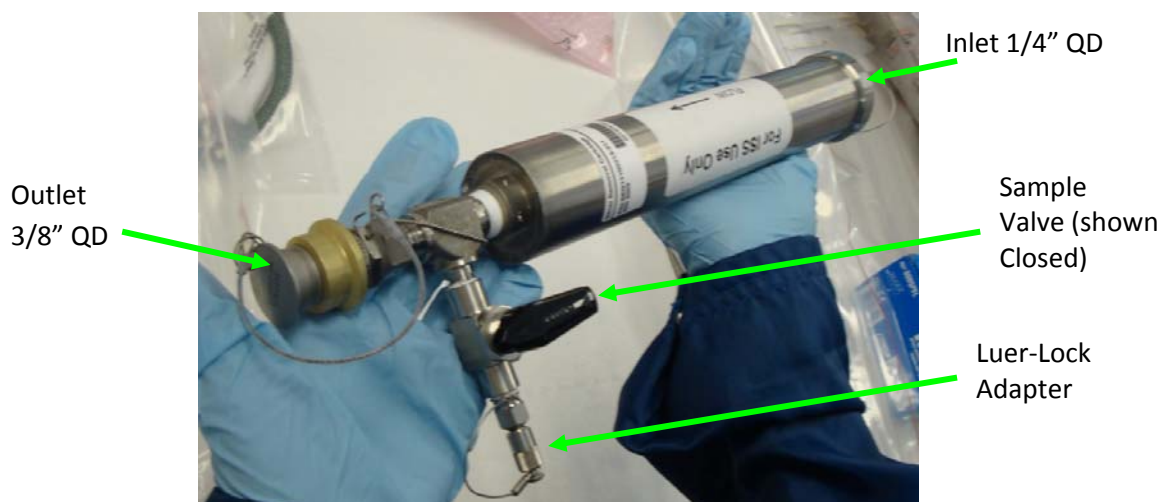
Figure 7. - Silver Removal Cartridge

5.1   Don Nitrile Gloves.

5.2   <u>Prepping Silver Removal Cartridge</u>
      Refer to Figures 6 and 7.

    5.2.1   Tethered plug ←|→ 1/4" QD "To OGA Filter to HX Jumper" on OGA Remediation Adapter

    5.2.2   1/4" QD (removed from OGA Filter to HX Jumper) →|← 1/4" QD "To OGA Filter to HX Jumper" on OGA Remediation Adapter

    5.2.3   OGA Remediation Adapter "To Silver Removal Cartridge" 3/8" QD ←|→ Outlet 3/8" QD on Silver Removal Cartridge

    5.2.4   Tethered cap ←|→ Inlet 1/4" QD on Silver Removal Cartridge

    5.2.5   Tethered cap →|← 3/8" QD "To Silver Removal Cartridge" on OGA Remediation Adapter

    5.2.6   Temporarily stow OGA Remediation Adapter with 1/4" QD.

5.3 Prepping OGA Filter to HX Jumper

5.3.1 Tethered cap ←|→ 3/8" QD "To Silver Removal Cartridge" on OGA Filter to HX Jumper

5.3.2 Bubble-wrap shell ←|→ 1/2" QD "To OGS Heat Exchanger" on OGA Filter to HX Jumper

5.4 Prepping OGA Pump to ACTEX Jumper

5.4.1 Tethered plug ←|→ 1/4" QD "To Silver Removal Cartridge" on OGA Pump to ACTEX Jumper

5.4.2 Bubble-wrap shell ←|→ 1/2" QD "To Pump ORU DIW TO HX" on OGA Pump to ACTEX Jumper.

6. REMEDIATION HARDWARE INSTALLATION

CAUTION
1. Although an approved installation, the Silver Removal Cartridge has lower Maximum Designed Pressure limits than may be experienced within the OGS Recirc Loop in the event of a pressure fault. Verify proper QD connections to protect against pressure anomalies within the loop which may cause leakage of remediation hardware.
2. To protect the Silver Removal Cartridge for thermal compliance during installation, the 30cc Syringe should remain connected to the Luer-Lock Adapter with the Sample Valve OPEN. If the 30cc Syringe inhibits placement into rack volume it may be removed for up to 10 minutes before reconnecting at the Luer-Lock Adapter. Doing so will reset the 10-minute thermal clock.

6.1 Removing 30cc Syringe from Silver Removal Cartridge - As Required
If 30cc Syringe causes physical interference during installation of Silver Removal Cartridge:

30cc Syringe ←|→ Luer-Lock Adapter on Silver Removal Cartridge
Cap →|← Luer-Lock Adapter on Silver Removal Cartridge
Start Timer for 9-minute countdown.
Temporarily secure 30cc Syringe.

When Timer expires:

Cap ←|→ Luer-Lock Adapter on Silver Removal Cartridge
30cc Syringe →|← Luer-Lock Adapter on Silver Removal Cartridge
√ Sample Valve on Silver Removal Cartridge ⌒ OPEN
Repeat step as needed for full installation.
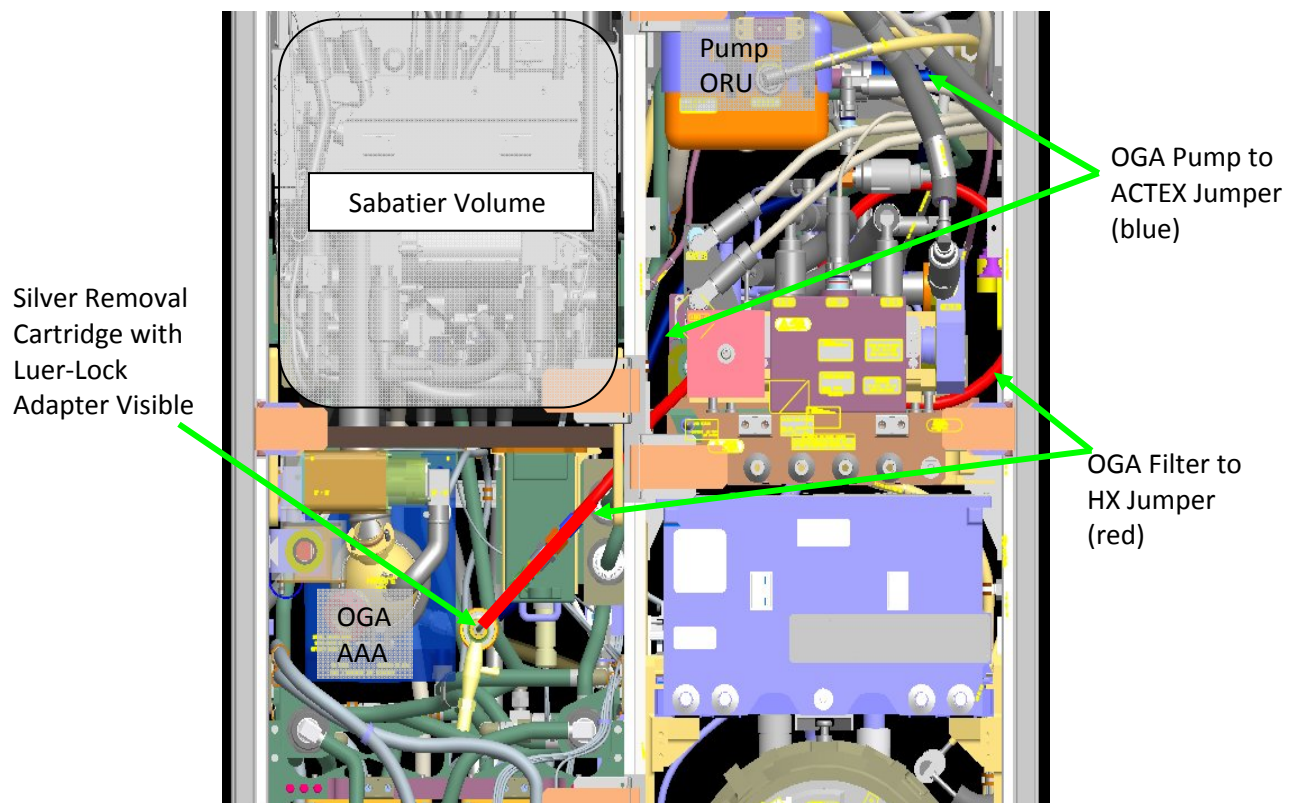
Figure 8. - View from front of OGS Rack
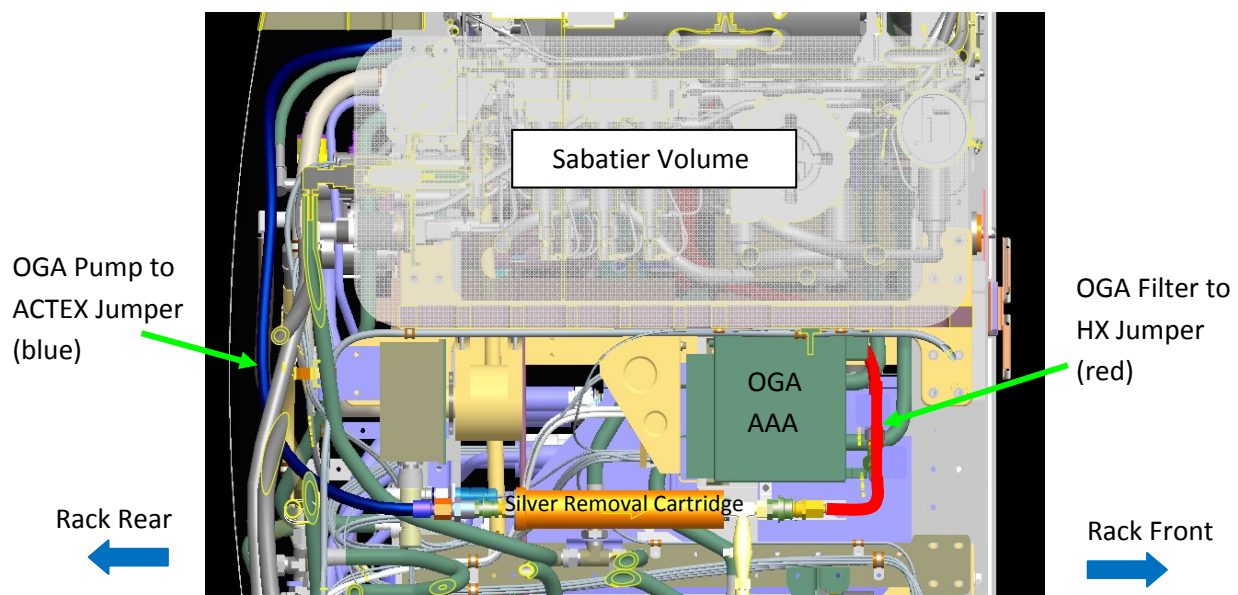
Figure 9. - View from Left Side of OGS Rack
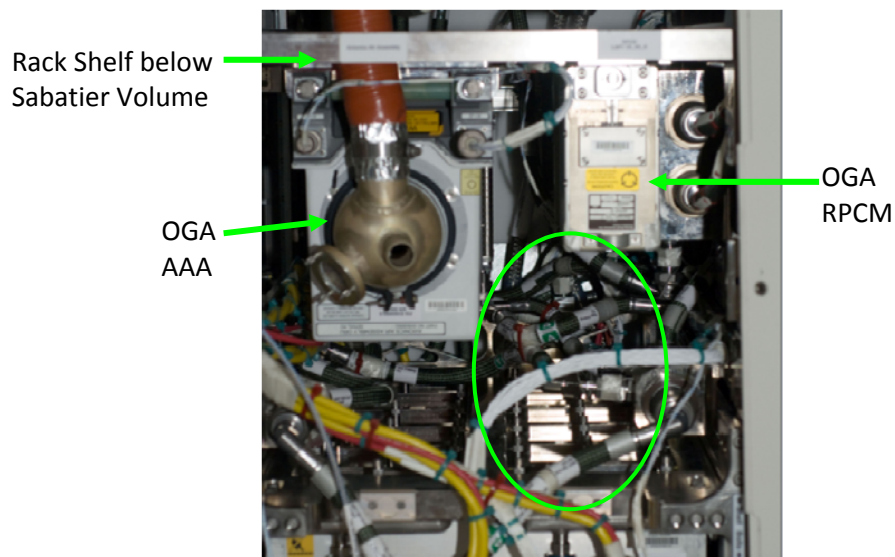
Figure 10. - Target Internal volume on left side of OGS Rack
below OGA AAA and RPCM ORUs
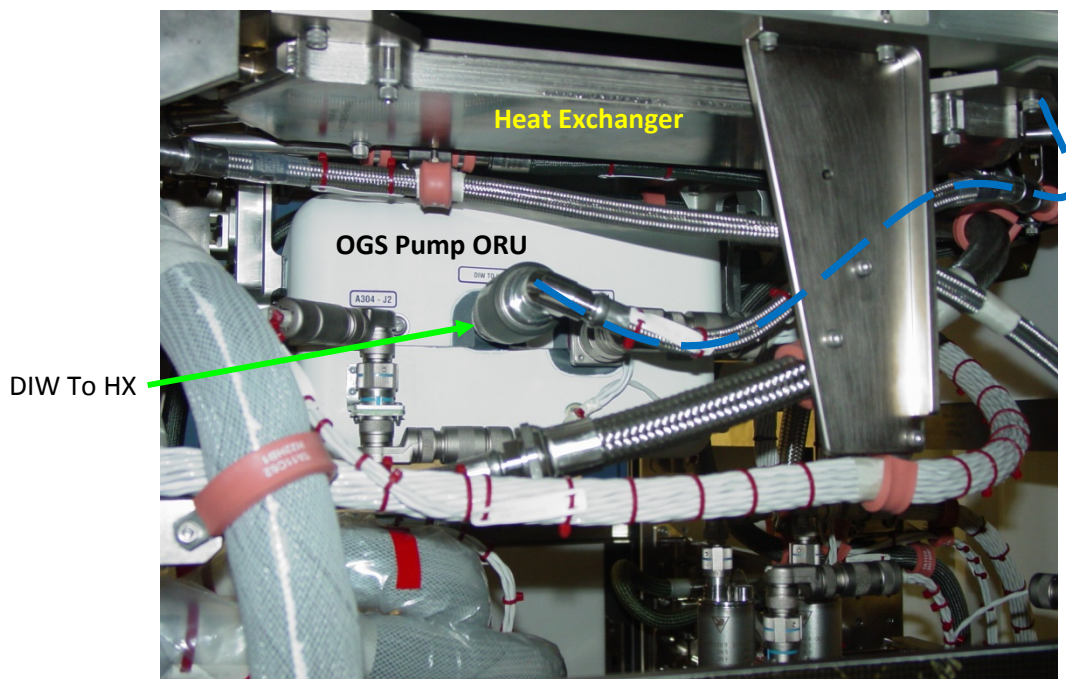
Figure 11. - OGS Pump ORU, view through right Side Rack Access Panel

CAUTION
1. Do not exceed a bend radius of 4.6" on either jumper during routing.
2. Do not demate the Pump ORU DIW TO HX Jumper at this stage. The final connection will be made in a later step.

> NOTE
> 1. Suggested placement and routing of the remediation hardware is provided but it is not required to be followed exactly.
>
> 2. The step sequence below assembles the jumpers and filter prior to placement in the rack, but the separate pieces may be placed individually first if that is easier.
>
> 3. It is expected that access for placement and routing will be required from both the front and rear of the OGS rack.
>
> 4. When possible, the jumpers should be routed such that they will not interfere with manipulation of other jumpers during other maintenance activities.
>
> 5. The final placement of the Silver Removal Cartridge Luer-Lock Adapter is desired to be accessible from the front of the OGS rack.

6.2 Building Continuous Remediation Assembly
Refer to Figure 5.

6.2.1   OGA Filter to HX Jumper "To Silver Removal Cartridge" 3/8" QD →|← Outlet 3/8" QD on Silver Removal Cartridge

6.2.2   OGA Pump to ACTEX Jumper "To Silver Removal Cartridge" 1/4" QD →|← Inlet 1/4" on QD Silver Removal Cartridge

6.3 Routing Continuous Remediation Hardware
Refer to Figures 8 to 11.

6.3.1   Locate target installation locations for Silver Removal Cartridge and jumpers.

6.3.2   Feeding jumpers as required, install Silver Removal Cartridge in volume under OGA AAA and RPCM ORUs.

The 3/8" QD and Luer-Lock Adapter should be towards the front of the rack, and the 1/4" QD should be towards the rack rear.

6.3.3   Route OGS Pump to ACTEX Jumper through rear of rack internal volume towards right side of rack, ending near the Pump ORU DIW TO HX QD.

6.3.4   Route OGS Filter to HX Jumper through rack internal volume towards Pump ORU DIW TO HX QD.

6.3.5   Extra jumper length may be coiled as long as 4.6" bend radius is not violated.   Secure as desired with 8" Wire Ties.

6.4 Verifying Placement of Continuous Remediation Hardware

    6.4.1   Verify no bend radius violations, no snags or interference with existing rack hardware.

    6.4.2   Assess if Luer-Lock Adapter on Silver Removal Cartridge is accessible from front of OGS Rack.

> **CAUTION**
>
> Access for sample draws will be assessed using 30cc Syringe at Luer-Lock Adapter. Do not pull Syringe Plunger back while mated to Luer-Lock Adapter as OGS system is not in the proper config for a pressure delta.

    6.4.3   If access is possible, simulate a sample connection at the Luer-Lock Adapter using 30cc Syringe with Plunger fully drawn. Assess if any structural or hardware interference present that would prevent using Luer-Lock Adapter for future sample draws.

    6.4.4   Notify **MCC-H** results of hardware installation, accessibility of Luer-Lock Adapter.

> **CAUTION**
>
> Thermal expansion can cause various components in the OGS Recirc Loop to exceed the maximum design pressure once DIW TO HX is demated. The time between demating the DIW TO HX QD and mating the OGA remediation jumpers should be less than 10 minutes.

6.5 To alleviate thermal expansion, perform step 6.6 within 10 minutes. Start 10 minute window on Timer.

Rack Side 6.6 Connecting Remediation Jumpers
Pump ORU   Refer to Figure 11.

    DIW TO HX Jumper ←|→ DIW TO HX on Pump ORU

    DIW TO HX Jumper →|← 1/2" QD "To OGS Heat Exchanger" on OGA Filter to HX Jumper

    OGA Pump to ACTEX Jumper "To Pump ORU DIW TO HX" 1/2" QD →|← DIW TO HX on Pump ORU

Rack Front 6.7 Sample Valve on Silver Removal Cartridge ↻ CLOSED

6.8 <u>Removing 30cc Syringe from Silver Removal Cartridge - If Required</u>
If 30cc Syringe is still connected to Luer-Lock Adapter,

30cc Syringe labeled "THERMAL" ←|→ Luer-Lock Adapter on Silver Removal Cartridge
Cap →|← Luer-Lock Adapter on Silver Removal Cartridge

6.9 Doff Nitrile Gloves.

6.10 Photodocument installation of Silver Removal Cartridge, two jumpers in rack volume (Digital Camera).

6.11 Replace Rear Rack Access Panel, fasteners (eight) (Ratchet, 1/4"; 5/32" Hex Head).
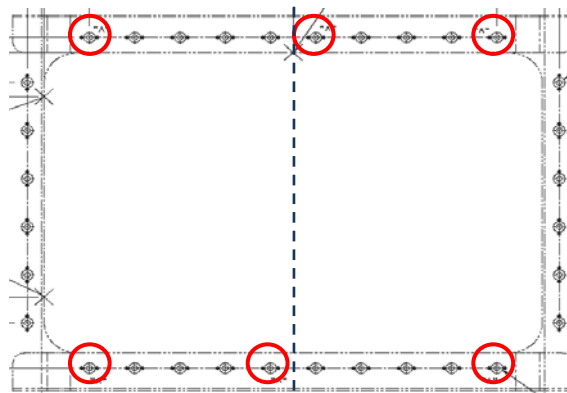
Figure 12. - OGS Upper Right Side Access Panel Fastener Minimum Config

6.12 Replace upper right Side Rack Access Panel, fasteners (six, one each corner and one each on opposite sides of vertical centerline) (Ratchet, 1/4"; 5/32" Hex Head).
Refer to Figure 12.

6.13 √Rack rotation path unobstructed
Slowly rotate rack up to a controlled stop.
Engage K-BAR thumb latches (two) to standoff

6.14 Close OGS right and left front rack doors.

NOD3F5   6.15 <u>Restore T2 Config As Desired</u>
Reinstall T2 Handrail.
Remove orange Snubber Alignment Guides (four) on T2.

6.16 Notify **MCC-H** "Installation complete, ready for OGS Activation."

7. <u>VISIBLE LEAK CHECK #1</u>
   7.1 **On MCC-H GO**
   Inspect modified 3/8" QD on OGA Filter to HX Jumper (near Luer-Lock Adapter on Silver Removal Cartridge) for any sign of leakage.
   Notify **MCC-H** of results.

   7.2 **MCC-H** will notify crew when ready for Visible Leak Check #2, approximately 3 hours.

8. <u>VISIBLE LEAK CHECK #2</u>
   8.1 **On MCC-H GO**
   Inspect modified 3/8" QD on OGA Filter to HX Jumper (near Luer-Lock Adapter on Silver Removal Cartridge) for any sign of leakage.
   Notify **MCC-H** of results.

   8.2 **MCC-H** will notify crew when ready for step 9 for rack closeout if required.

9. <u>NOD3A5 CLOSEOUT</u>

NOD3A5 UIP

   9.1 Remove UIP Closeout from Rack, 1/4 Turn Fasteners, Velcro.

   9.2 Nitrogen Inlet Jumper ←|→ N2 on OGS UIP
   Refer to Figure 1.

   9.3 Nitrogen Inlet Jumper →|← Node 3 TOCA N2 Hose (male end)

   9.4 Node 3 TOCA N2 Hose (female end) →|← N2 on OGS UIP

   9.5 Photo document Node 3 TOCA N2 Hose configuration.

   9.6 Reattach UIP Closeout to Rack, 1/4 Turn Fasteners (two), Velcro.
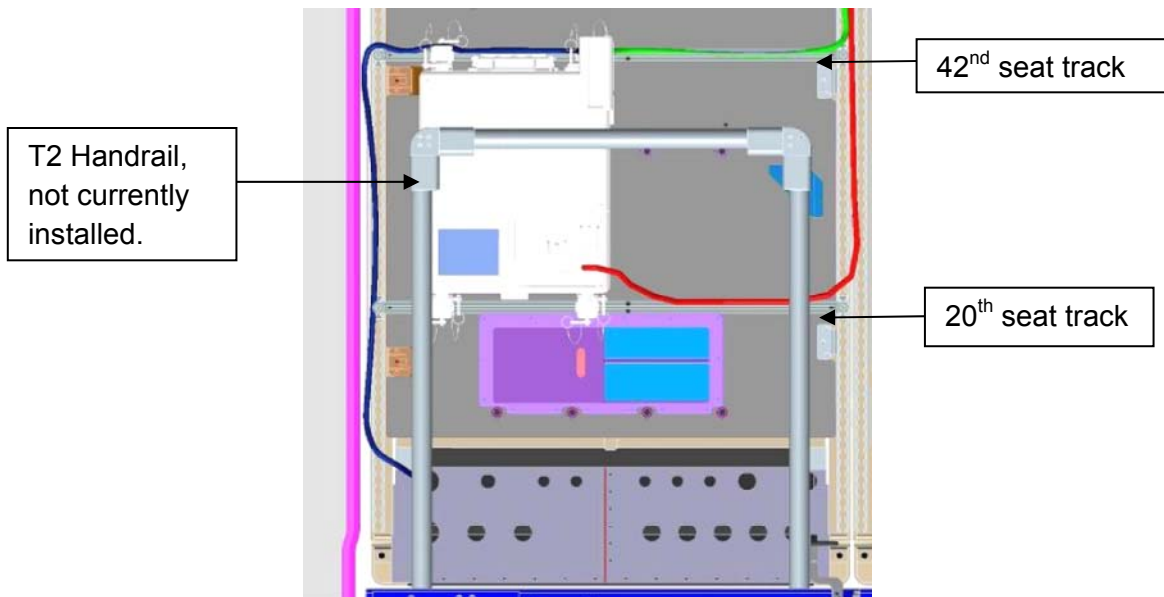
Figure 13.- TOCA Mounted on WRS1

26 OCT 09

TOCA   9.7 Reinstall TOCA

Place upper ЕДВ Mount Assembly – Seat Track Bracket on seat track in 20th slot from the bottom of the WRS 1 rack.

Place lower ЕДВ Mount Assembly – Seat Track Bracket on seat track in 42nd slot.

Hand tighten knobs (four).

Refer to Figure 13.

NOD3F5   9.8 Reinstall T2 Handrail.

Remove orange Snubber Alignment Guides (four) on T2.

         9.9 Notify **MCC-H** "Rack Closeout is complete."

10. POST MAINTENANCE

   10.1 Notify **MCC-H** of task completion.

   10.2 Stow tools, materials.

Restow Table

Item	P/N	Notes
OGA Remediation Adapter	SEG33122706-302	1/4" QD-M removed from OGA Filter to HX Jumper and mated to OGA Remediation Adapter for thermal compliance during stowage.
1/4" QD	502060-1191	
30cc Syringe	SEG46121619-301	Labeled "THERMAL"
MCV CV Inlet Conical Seal	SV827421-6	Trash

BATT-INSTL (MS4) - 141/07:11

#	Location	Item Name	P/N	S/N	B/C	Notes
Type: Standard						
1	**NOD1_Deployed** Mesh Bag: EVA 2 Systems	LiOH Cartridge Canister	MC621-0008-0409/SV755510-4	Any		Report S/N to MCC-H
2		EMU Li-Ion Battery	SV1014881-00-00	3006 3007	00133627J 00133628J	
3	**EMU 3004** Aft EDDA	LiOH Cartridge Canister	MC621-0008-0409/SV755510-4	2003	EMUH02J	
Type: Restow						
4	**Mesh Bag: SYSTEMS TRANSFER**	LiOH Cartridge Canister	MC621-0008-0409/SV755510-4	2003	EMUH02J	Used from EMU 3004; Install caps
5	**EMU 3004** Aft EDDA	EMU Li-Ion Battery	SV1014881-00-00	3006	00133627J	
6		LiOH Cartridge Canister	SV792600-00-02	Any		Report S/N to MCC-H
7	**EMU 3018** Fwd EDDA	EMU Li-Ion Battery	SV1014881-00-00	3007	00133628J	

REBA-INSTL (MS4) - 141/07:31

#	Location	Item Name	P/N	S/N	B/C	Notes
Type: Standard						
1	**NOD1_Deployed** Mesh Bag: EVA 2 Systems	REBA	SEG33112213-302	1009	REBA1009J	
Type: Restow						
2	**EMU 3018** FWD EDDA	REBA	SEG33112213-302	1009	REBA1009J	

N2 XFER TERM (CDR,FE-6) - 141/09:41

#	Location	Item Name	P/N	S/N	B/C	Notes
Type: Standard						
1	**NOD1D4_G2** Drawer 3	Inspection Mirror	SKG33117562-923			
Type: Restow						
2	**NOD1P4_D**	GN2 Transfer Flex Hose Assy	V857-643003-008	06NT6FL03 76021		

OGS-QD-MOD (MS4/MS1) - 141/04:41

#	Location	Item Name	P/N	S/N	B/C	Notes
Type: Standard						
1	**NOD1D4_G2** Drawer 1	7/8" Combination Wrench	SKG33117562-320			
2		1" Combination Wrench	SKG33117562-318			
3		1" Crowfoot, 3/8" Drive	SEG33114112-307			
4	**NOD1D4_G2** Drawer 5	8-1/4" Long, 2" Cut Scissors	SKG33117562-934			
5	**NOD1D4_G2** Drawer 3	(200-1000 in-lbs) Trq Wrench, 3/8" Drive	SEG33117289-303	M213587		
6	**NOD1P4_B2**	MWA Utility Kit	SJG33110310-301		001633J	If required to secure Jumper for high torque steps.
7		Track Restraint	SEG33110158-301			
8		ORU Clamp	SEG33110172-301			
9	**PMM1S3_C1** 1.0 CTB, S/N 1291, B/C 010627J	OGA Filter to HX Jumper	SV825600CT015	01	00142436J	
10	**PMM1S4** 1.0 CTB: CHeCS/Payloads, S/N 1092, B/C 004086J	Ziplock Bag				
11		OGA 3/8" Male QD	SEG33123120-301	REPORT	REPORT	
12		MCV CV Inlet Conical Seal	SV827421-6			
Type: Restow						
13	**Temp stow for OGS-CONT-INSTALL**	OGA Filter to HX Jumper Assy	SEG33123138-301			Original jumper with modified QD to be installed in OGS rack
14		1/4" QD	502060-1191			Removed 1/4" QD, to be used in OGS-CONT-INSTALL

KU-CABLE-ROUTE - 141/09:41

#	Location	Item Name	P/N	S/N	B/C	Notes
Type: Standard						
1	**LAB1O6**	8" Wire Ties	T30M2HALC2			As required
2	**A/L1_Deployed**	CSA-O2 [Qty. 2]	SED46115801-305	1045 1046	00127914J 00054324J	
3	**LAB1P6**	Label Maker	SEG33120486-301	1001	00085849J	
4	**LAB1D2 UIP**	KuBand Coax Data Cable	684-014026-0001	0001	00095620J	Stowed during previous Ku-Band Cable Routing part 2

MSG 055 FD06 Focused Inspection Procedure

<u>NOTE</u>
This procedure uses 5 SRMS/OBSS positions to survey an area of damaged tile aft of the Stbd MLGD. For each position, the sequence of events is as follows:
1. OCAS SRMS into position
2. Verify IDC view with MCC
3. Perform LCS scan
4. Perform IDC scan (continue scan during manuever to next point)

LDRI (Mode 6) will be used for illumination and recorded throughout this inspection
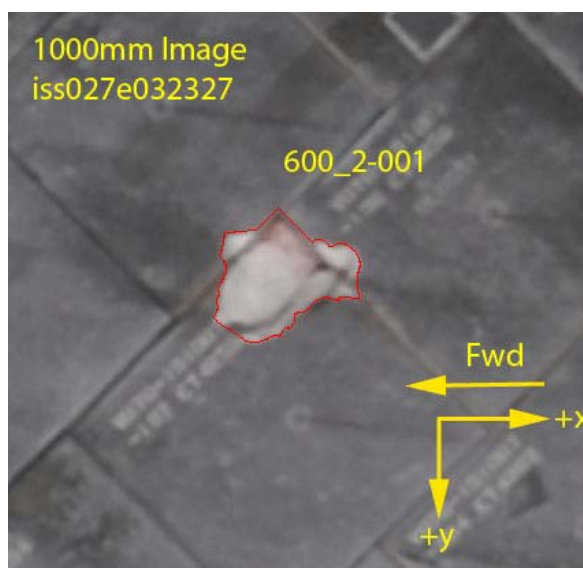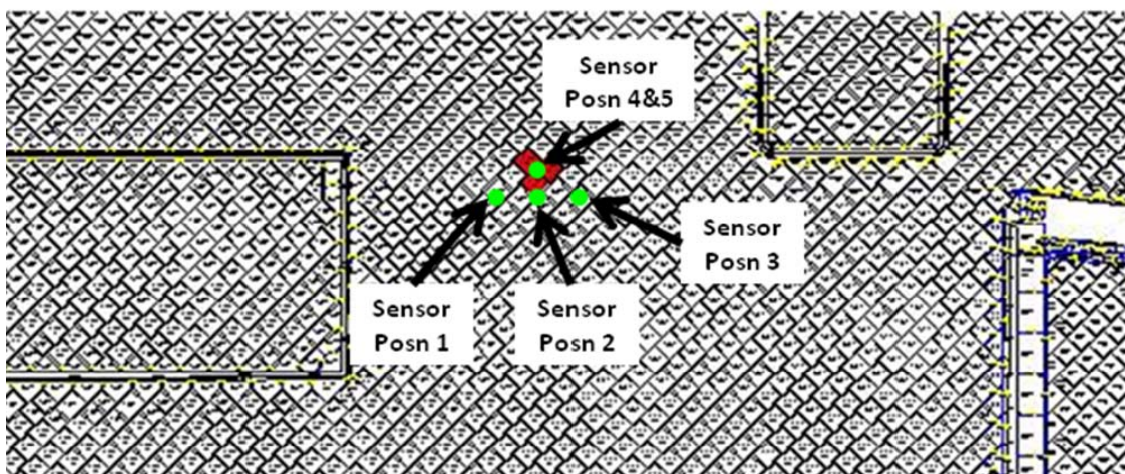
Damaged Tile Near Stbd MLGD

1. <u>SETUP</u>
    Verify SSRMS in Focused Inspection Viewing posn

SR	SY	SP	EP	WP	WY	WR
-87.9	+75.0	-138.0	+30.0	-75.0	-125.0	-2.0

R12 (VPU)   Green Jumper – LDRI/ITVC
                   Configure PGSC for ISS video

MSG 055 FD06 Focused Inspection Procedure

DNLK	A
DTV	Elbow
MON 1	RSC(D)
MON 2	B
A31p	09: P1 LOOB(25: Tip LEE)

CCTV A (20,30)
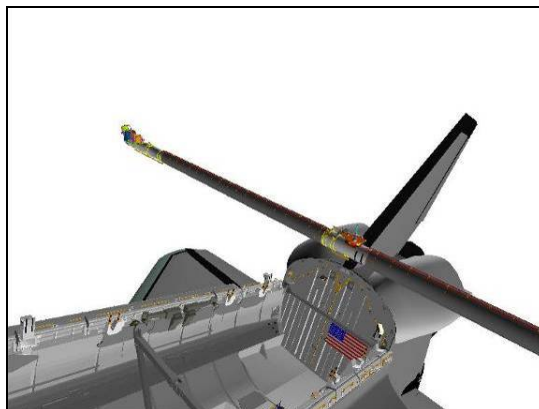
ELBOW (-70,10)
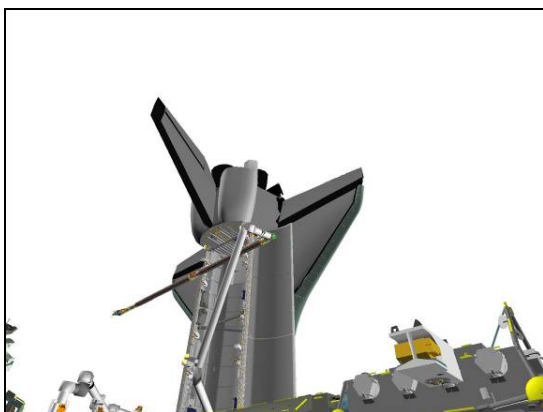
09: P1 LOOB (140,40)
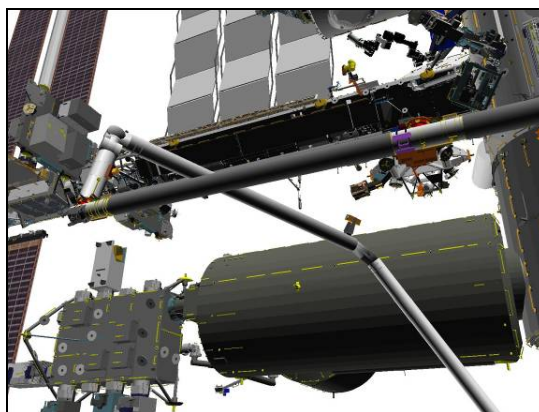
CCTV B (-25,25)

Perform IDC SOFTWARE ACTIVATION (IDC (Cue Card), PHOTO/TV) steps 1 & 2

2. MNVR TO INTERMEDIATE 1 POSITION

NOTE
Minimum clearance between SRMS and JEM is 29 inches during maneuver. Monitor with Camera A

SM 94 PDRS CONTROL
PL ID   – ITEM   3 +1 EXEC
   INIT ID – ITEM 24 +1 EXEC

END POS – ITEM 18 -9 6 7 -6 4 3 -3 8 6 EXEC
     ATT   – ITEM 21 + 6 0 +3 4 9 +2 8 2 EXEC
CMD CK   – ITEM 25 EXEC (GOOD)

MSG 055 FD06 Focused Inspection Procedure

Verify at OBSS HANDOFF posn:

	X	Y	Z	PITCH	YAW	ROLL	PLID	
√	-1041	-362	-602	44	270	0	1	*
	SY	SP	EP	WP	WY	WR		
√	+25.8	+66.3	-49.0	-85.9	+10.7	-100.7		

*display singularity

RHC   RATE   – COARSE (RATE MIN tb-OFF)
             BRAKES – OFF (tb-OFF)
             MODE   – OPR CMD, ENTER (READY lt on)

             AUTO SEQ – PROCEED (IN PROG lt on)

             When AUTO SEQ IN PROG lt – off:
                BRAKES – ON (tb-ON)

INTERMEDIATE 1 posn: (2:55)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-967	-643	-386	60	349	282	1
	SY	SP	EP	WP	WY	WR	
√	+62.5	+25.2	-23.5	+0.9	-13.1	-21.8	
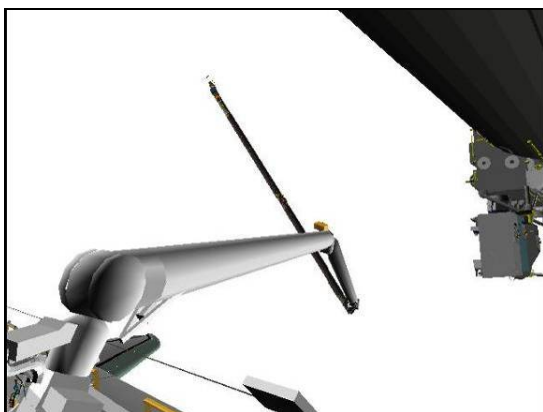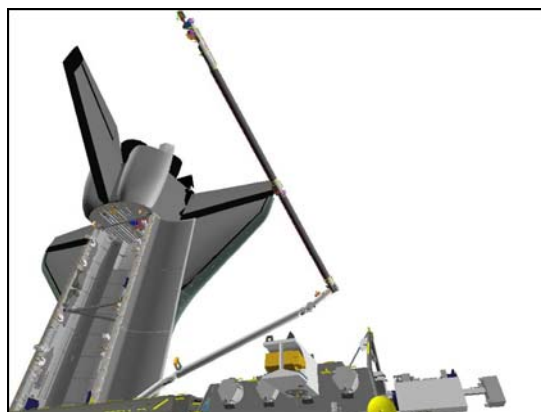
CCTV A (45,10)   **09: P1 LOOB (160,40)**

3. <u>MNVR TO INTERMEDIATE 2 POSITION</u>

     ⌐ SM 94 PDRS CONTROL ¬

     END POS – ITEM 18 -8 1 6   -5 7 6   -1 8 0 EXEC
            ATT   – ITEM 21 +0   +1 1   +3 2 8 EXEC
     CMD CK   – ITEM 25 EXEC (GOOD)

     BRAKES – OFF (tb-OFF)
     MODE   – OPR CMD, ENTER (READY lt on)

     AUTO SEQ – PROCEED (IN PROG lt on)

     When AUTO SEQ IN PROG lt – off:
         BRAKES – ON (tb-ON)

INTERMEDIATE 2 posn: (2:15)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-816	-576	-180	0	11	328	1
	SY	SP	EP	WP	WY	WR	
√	+74.5	+16.2	-33.0	-52.6	+6.0	-44.5	

CCTV A (45,0)

ELBOW (-30,10)

4. <u>SENSOR POSITION 1(6" Forward)</u>

| SM 94 PDRS CONTROL |

PL ID – ITEM 3 +<u>2</u> EXEC
   INIT ID – ITEM 24 +<u>2</u> EXEC

END POS – ITEM 18 -<u>1</u> <u>2</u> <u>6</u> <u>0.6</u> +<u>1</u> <u>4</u> <u>5.4</u> -<u>1</u> <u>8</u> <u>8.1</u> EXEC
   ATT – ITEM 21 +<u>3</u> <u>5</u> <u>8.7</u> +<u>2</u> <u>9</u> <u>7.1</u> +<u>3.2</u> EXEC
CMD CK – ITEM 25 EXEC (GOOD)

Verify INTERMEDIATE 2 posn:

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1397	-685	-196	360	11	358	2
	SY	SP	EP	WP	WY	WR	
√	+74.5	+16.2	-33.0	-52.6	+6.0	-44.5	

BRAKES – OFF (tb-OFF)
MODE – OPR CMD, ENTER (READY lt on)

<u>NOTE</u>
   OBSS comes into Tip LEE field of view as OBSS moves
   under the wing

AUTO SEQ – PROCEED (IN PROG lt on)

When AUTO SEQ IN PROG lt – off:
   BRAKES – ON (tb-ON)

SENSOR POSITION 1: (6:25)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1261	+145	-188	359	297	3	2
	SY	SP	EP	WP	WY	WR	
√	+45.6	+25.1	-64.8	-40.1	+15.5	-89.2	
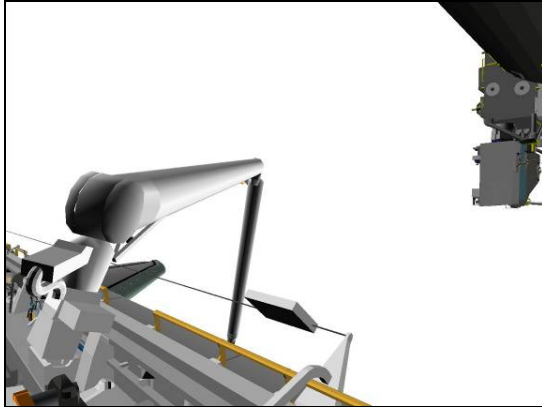
CCTV A (45,0)
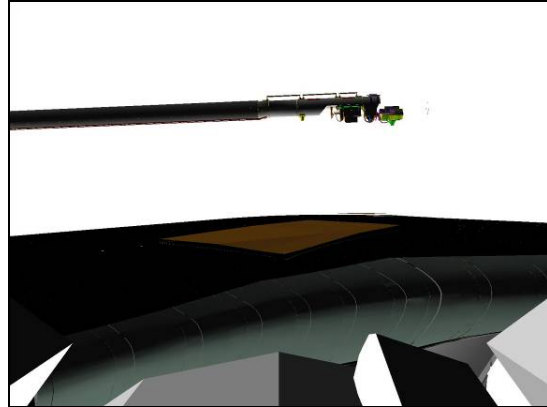
25: TIP LEE

4.1 LDRI Setup

PCS   MSS: SSRMS: Thrusters: | Thruster Controls for MSS Ops |
               Verify 'Desat Request:' Inhibit

A7U   MUX 1 L ← MIDDECK
               LDRI MODE 6 pb – push (Flickering LDRI video)
               DTV ← PL2

               CAMR CMD PAN/TILT – HI RATE
                              PAN – L (to hard stop)
                              TILT – UP (to hard stop)
                              PAN/TILT – RESET
                                      – LO RATE within 10°
                              PAN: +85 (right)
                              TILT: -57 (down)

               √MCC to verify correct sensor view
               Note PAN/TILT: ___, ___

               VID OUT - not DTV
                       IN - not PL2

L10(VTR)   REC pb – push, hold
               PLAY pb – push, simo (red ●)

4.2 IDC View Verification

NOTE
If GMT does not update during Ops, an attempt
to shut down/restart A31p should be made.
Restarting the A31p may require LCH power cycle.

LCC/PGSC   Maximize IDC software
            sel 'Power On'

            √Black and White self-test image displayed
            √'Waiting for User Command' displayed
            √'AE' checked
            sel 'Scan Lo-Res'

Resize and posn AE box as reqd (pause 2 sec)

√MCC for AOI FOV

* If FOV adjustment required:	*
* RATE – VERN (RATE MIN tb-ON)	*
* BRAKES – OFF (tb-OFF)	*
* MODE – ORB LD, ENTER	*
*	*
* Mnvr as required (X & Y only)	*

Input	Damage Moves:
+X (THC out)	Left & Up
-X (THC in)	Right & Down
+Y (THC left)	Down & Left
-Y (THC right)	Up & Right

Damage moves in FOV per graphic:

   BRAKES – ON (tb-ON)
   RATE   – COARSE (RATE MIN tb-OFF)
   √MCC for AOI FOV

sel 'Stop Scan'

4.3 LCS Scan

LCC/PGSC   Minimize, do not close IDC software
Maximize LCC software

Confirm 90 seconds since "BRAKES – ON" before beginning data collection

LCC/   Verify 'Scanning' 'Auto-Exposure:' 'Use Auto Exposure'
A31p   Verify 'Custom Area' disabled (not checked)

'Scanning' 'Quick View Scan'
sel – Quick View 1
cmd Start Quick View (Verify Scan Status: Complete)

√MCC to verify correct sensor view

If "Unable to reach acceptable auto-exposure criteria" msg:
   'Scanning' 'Auto-Exposure:' 'Use Auto-Exposure'
  sel – 'Custom Area' (Verify check)

    Reposition and resize box to encompass feature, with
    minimal background material surrounding it

    cmd Start Quick View (Verify Scan Status: Complete)

MSG 055 FD06 Focused Inspection Procedure
'Scanning' 'Detailed Area Scan'
sel – Area Scan 13
cmd Start Area Scan (Verify Scan Status: Complete)

4.4   IDC Scan

LCC/PGSC   Minimize, do not close LCC software
Maximize IDC software

Perform OPERATION (IDC (Cue Card), PHOTO/TV) steps 2-3
Use "Black Tile – Day" or "Black Tile – Night" per real-time environment

√MCC to verify data take

Perform OPERATION (IDC (Cue Card), PHOTO/TV) step 2
Do not sel 'Stop Scan'

5.   SENSOR POSITION 2 (Outboard Even)

NOTE
If an adjustment is made for FOV, manuever back to the
Sensor Position 1 values prior to performing this OCAS

A7U   DNLK ← Elbow

| SM 94 PDRS CONTROL |
END POS – ITEM 18 -1 2 6 7.7 +1 4 5.6 -1 8 7.7 EXEC
    ATT – ITEM 21 +2.3 +2 9 7.2 +3.4 EXEC
CMD CK – ITEM 25 EXEC (GOOD)

BRAKES – OFF (tb-OFF)
MODE – OPR CMD, ENTER (READY lt on)

AUTO SEQ – PROCEED (IN PROG lt on)

When AUTO SEQ IN PROG lt – off:
BRAKES – ON (tb-ON)

LCC/PGSC   sel 'Stop Scan'

SENSOR POSITION 2 posn: (0:25)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1267	+146	-188	2	297	3	2
	SY	SP	EP	WP	WY	WR	
√	+45.8	+21.3	-61.3	-37.4	+12.9	-90.0	

5.1   IDC View Verification
sel 'Scan Lo-Res'
Resize and posn AE box as reqd (pause 2 sec)

√MCC for AOI FOV

MSG 055 FD06 Focused Inspection Procedure

```
              *  If FOV adjustment required:                    *
              *      RATE    – VERN (RATE MIN tb-ON)            *
              *      BRAKES – OFF (tb-OFF)                      *
              *      MODE    – ORB LD, ENTER                    *
              *                                                 *
              *      Mnvr as required (X & Y only)              *
```

Input	Damage Moves:
+X (THC out)	Left & Up
-X (THC in)	Right & Down
+Y (THC left)	Down & Left
-Y (THC right)	Up & Right

```
   *  Damage moves in FOV per graphic:                          *
```



```
              *      BRAKES  – ON (tb-ON)                       *
              *      RATE    – COARSE (RATE MIN tb-OFF)         *
              *      √MCC for AOI FOV                           *
```

sel 'Stop Scan'

5.2 <u>LCS Scan</u>

LCC/PGSC   Minimize, do not close IDC software
Maximize LCC software

Confirm 90 seconds since "BRAKES – ON" before beginning data collection

LCC/   Verify 'Scanning' 'Auto-Exposure:' 'Use Auto Exposure'
A31p   Verify 'Custom Area' disabled (not checked)

'Scanning' 'Quick View Scan'
sel – Quick View 1
cmd Start Quick View (Verify Scan Status: Complete)

√MCC to verify correct sensor view

```
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
  If "Unable to reach acceptable auto-exposure criteria" msg:
      'Scanning' 'Auto-Exposure:' 'Use Auto-Exposure'
      sel – 'Custom Area' (Verify check)

          Reposition and resize box to encompass feature, with
          minimal background material surrounding it

          cmd Start Quick View (Verify Scan Status: Complete)
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
```

'Scanning' 'Detailed Area Scan'
sel – Area Scan 13
cmd Start Area Scan (Verify Scan Status: Complete)

MSG 055 FD06 Focused Inspection Procedure

5.3 IDC Scan

LCC/PGSC   Minimize, do not close LCC software
             Maximize IDC software

NOTE
If GMT does not update during Ops, an attempt
to shut down/restart A31p should be made.
Restarting the A31p may require LCH power cycle.

Perform OPERATION (IDC (Cue Card), PHOTO/TV) steps 2-3
Use "Black Tile – Day" or "Black Tile – Night" per real-time environment

√MCC to verify data take

Perform OPERATION (IDC (Cue Card), PHOTO/TV) step 2
   Do not sel 'Stop Scan'

6. SENSOR POSITION 3 (6" Aft)

NOTE
If an adjustment is made for FOV, manuever back to the
Sensor Position 2 values prior to performing this OCAS

SM 94 PDRS CONTROL
END POS – ITEM 18 -1 2 7 0.8 +1 4 5.8 -1 8 7.7 EXEC
     ATT – ITEM 21 +4.9   +2 9 8 +6 EXEC
CMD CK – ITEM 25 EXEC (GOOD)

BRAKES – OFF (tb-OFF)
MODE   – OPR CMD, ENTER (READY lt on)

AUTO SEQ – PROCEED (IN PROG lt on)

When AUTO SEQ IN PROG lt – off:
   BRAKES – ON (tb-ON)

LCC/PGSC   sel 'Stop Scan'

SENSOR POSITION 3:   (0:20)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1271	+146	-188	5	298	6	2
	SY	SP	EP	WP	WY	WR	
√	+46.3	+19.4	-60.8	-36.6	+11.7	-89.6	

6.1 IDC View Verification
    sel 'Scan Lo-Res'
    Resize and posn AE box as reqd (pause 2 sec)

√MCC for AOI FOV

MSG 055 FD06 Focused Inspection Procedure

```
*    If FOV adjustment required:                            *
*        RATE      – VERN (RATE MIN tb-ON)                  *
*        BRAKES  – OFF (tb-OFF)                             *
*        MODE      – ORB LD, ENTER                          *
*                                                           *
*        Mnvr as required (X & Y only)                      *
*                                                           *
```
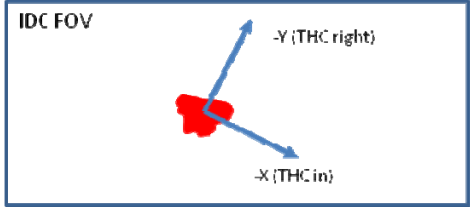
Input	Damage Moves:
+X (THC out)	Left & Up
-X (THC in)	Right & Down
+Y (THC left)	Down & Left
-Y (THC right)	Up & Right

```
*    Damage moves in FOV per graphic:                       *
```



```
*        BRAKES  – ON (tb-ON)                               *
*        RATE      – COARSE (RATE MIN tb-OFF)               *
*        √MCC for AOI FOV                                   *
```

            sel 'Stop Scan'

   6.2 LCS Scan

LCC/PGSC   Minimize, do not close IDC software
                Maximize LCC software

                Confirm 90 seconds since "BRAKES – ON" before beginning data collection

LCC/   Verify 'Scanning' 'Auto-Exposure:' 'Use Auto Exposure'
A31p   Verify 'Custom Area' disabled (not checked)

                'Scanning' 'Quick View Scan'
                sel – Quick View 1
                cmd Start Quick View (Verify Scan Status: Complete)

                √MCC to verify correct sensor view

                If "Unable to reach acceptable auto-exposure criteria" msg:
                    'Scanning' 'Auto-Exposure:' 'Use Auto-Exposure'
                    sel – 'Custom Area' (Verify check)

                        Reposition and resize box to encompass feature, with
                        minimal background material surrounding it

                        cmd Start Quick View (Verify Scan Status: Complete)

                'Scanning' 'Detailed Area Scan'
                sel – Area Scan 13
                cmd Start Area Scan (Verify Scan Status: Complete)

MSG 055 FD06 Focused Inspection Procedure

6.3 IDC Scan

LCC/PGSC   Minimize, do not close LCC software
            Maximize IDC software

NOTE
If GMT does not update during Ops, an attempt
to shut down/restart A31p should be made.
Restarting the A31p may require LCH power cycle.

Perform OPERATION (IDC (Cue Card), PHOTO/TV) steps 2-3
Use "Black Tile – Day" or "Black Tile – Night" per real-time environment

√MCC to verify data take

Perform OPERATION (IDC (Cue Card), PHOTO/TV) step 2
  Do not sel 'Stop Scan'

7. SENSOR POSITION 4 (Normal Overview)

NOTE
If an adjustment is made for FOV, manuever back to the
Sensor Position 3 values prior to performing this OCAS

SM 94 PDRS CONTROL
END POS – ITEM 18 -1 2 6 7.7 +1 4 2.4 -1 8 8.4 EXEC
     ATT – ITEM 21 +0 +2 9 6.5 +0 EXEC
CMD CK – ITEM 25 EXEC (GOOD)

BRAKES – OFF (tb-OFF)
MODE   – OPR CMD, ENTER (READY lt on)

AUTO SEQ – PROCEED (IN PROG lt on)

When AUTO SEQ IN PROG lt – off:
    BRAKES – ON (tb-ON)

LCC/PGSC   sel 'Stop Scan'

SENSOR POSITION 4:   (0:20)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1268	+142	-188	0	297	0	2
	SY	SP	EP	WP	WY	WR	
√	+45.4	+22.6	-60.8	-37.6	+13.5	-90.6	

7.1 IDC View Verification
    sel 'Scan Lo-Res'
    Resize and posn AE box as reqd (pause 2 sec)

√MCC for AOI FOV

MSG 055 FD06 Focused Inspection Procedure

```
                              *   If FOV adjustment required:                    *
                              *       RATE      – VERN (RATE MIN tb-ON)          *
                              *       BRAKES – OFF (tb-OFF)                      *
                              *       MODE     – ORB LD, ENTER                   *
                              *                                                  *
                              *       Mnvr as required (X & Y only)              *
```

Input	Damage Moves:
+X (THC out)	Left & Up
-X (THC in)	Right & Down
+Y (THC left)	Down & Left
-Y (THC right)	Up & Right

```
      *   Damage moves in FOV per graphic:                   *
```



```
      *       BRAKES  – ON (tb-ON)                           *
      *       RATE       – COARSE (RATE MIN tb-OFF)          *
      *       √MCC for AOI FOV                               *
```

sel 'Stop Scan'

7.2 LCS Scan

LCC/PGSC Minimize, do not close IDC software
Maximize LCC software

Confirm 90 seconds since "BRAKES – ON" before beginning data collection

LCC/ Verify 'Scanning' 'Auto-Exposure:' 'Use Auto Exposure'
A31p Verify 'Custom Area' disabled (not checked)

'Scanning' 'Quick View Scan'
sel – Quick View 1
cmd Start Quick View (Verify Scan Status: Complete)

√MCC to verify correct sensor view

If "Unable to reach acceptable auto-exposure criteria" msg:
'Scanning' 'Auto-Exposure:' 'Use Auto-Exposure'
sel – 'Custom Area' (Verify check)

Reposition and resize box to encompass feature, with
minimal background material surrounding it

cmd Start Quick View (Verify Scan Status: Complete)

'Scanning' 'Detailed Area Scan'
sel – Area Scan 13
cmd Start Area Scan (Verify Scan Status: Complete)

MSG 055 FD06 Focused Inspection Procedure

        7.3 <u>IDC Scan</u>
LCC/PGSC   Minimize, do not close LCC software
                 Maximize IDC software

<div align="center"><u>NOTE</u></div>

If GMT does not update during Ops, an attempt
to shut down/restart A31p should be made.
Restarting the A31p may require LCH power cycle.

Perform OPERATION (<u>IDC</u> (Cue Card), PHOTO/TV) steps 2-3
Use "Black Tile – Day" or "Black Tile – Night" per real-time environment

√MCC to verify data take

Perform OPERATION (<u>IDC</u> (Cue Card), PHOTO/TV) step 2
  Do not sel 'Stop Scan'

  8. <u>SENSOR POSITION 5 (Normal Overview for LCS)</u>

<div align="center"><u>NOTE</u></div>

If an adjustment is made for FOV, manuever back to the
Sensor Position 4 values prior to performing this OCAS

| SM 94 PDRS CONTROL |

END POS – ITEM 18 -<u>1</u> 2 5 <u>7</u>.4 +<u>1</u> 3 5 -<u>1</u> 8 <u>6</u>.1 EXEC
    ATT – ITEM 21 +<u>0</u> +<u>2</u> 9 <u>6</u>.6 +<u>0</u>.1 EXEC
CMD CK – ITEM 25 EXEC (GOOD)

BRAKES – OFF (tb-OFF)
MODE   – OPR CMD, ENTER (READY lt on)

AUTO SEQ – PROCEED (IN PROG lt on)

When AUTO SEQ IN PROG lt – off:
    BRAKES – ON (tb-ON)
LCC/PGSC   sel 'Stop Scan'

SENSOR POSITION 5:   (0:25)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-1258	+135	-186	0	297	0	2
	SY	SP	EP	WP	WY	WR	
√	+47.0	+23.1	-61.7	-37.0	+13.2	-92.1	

        8.1 <u>LCS Scan</u>
LCC/PGSC   Minimize, do not close IDC software
                 Maximize LCC software

Confirm 90 seconds since "BRAKES – ON" before beginning data collection

LCC/   Verify 'Scanning' 'Auto-Exposure:' 'Use Auto Exposure'
A31p   Verify 'Custom Area' disabled (not checked)

MSG 055 FD06 Focused Inspection Procedure

        'Scanning' 'Quick View Scan'
        sel – Quick View 1
        cmd Start Quick View (Verify Scan Status: Complete)

        √MCC to verify correct sensor view

```
*   If FOV adjustment required:                                        *
*       RATE     – VERN (RATE MIN tb-ON)                               *
*       BRAKES  – OFF (tb-OFF)                                         *
*       MODE     – ORB LD, ENTER                                       *
*                                                                     *
*       Mnvr as required (X & Y only)                                  *
```

Input	Damage Moves:
+X (THC out)	Down & Left
-X (THC in)	Up & Right
+Y (THC left)	Right & Down
-Y (THC right)	Left & Up

```
*   Damage moves in FOV per graphic:                                   *
```


LCS FOV
-X (THC in)
-Y (THC right)
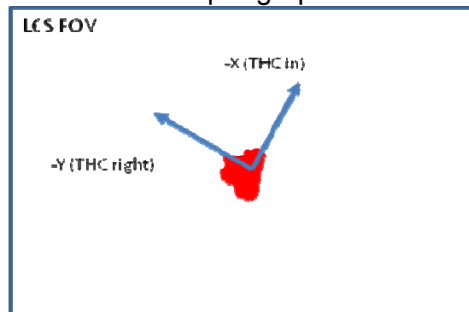
```
*       BRAKES  – ON (tb-ON)                                           *
*       RATE     – COARSE (RATE MIN tb-OFF)                            *
*                                                                     *
*       Wait 90 sec, then:                                             *
*       sel – Quick View 1                                             *
*       cmd Start Quick View (Verify Scan Status: Complete)           *
*   √MCC for AOI FOV                                                   *
```

If "Unable to reach acceptable auto-exposure criteria" msg:
    'Scanning' 'Auto-Exposure:' 'Use Auto-Exposure'
    sel – 'Custom Area' (Verify check)

        Reposition and resize box to encompass feature, with
        minimal background material surrounding it

        cmd Start Quick View (Verify Scan Status: Complete)

    'Scanning' 'Detailed Area Scan'
    sel – Area Scan 13
    cmd Start Area Scan (Verify Scan Status: Complete)

      9. <u>SENSOR DEACTIVATION</u>

L10(VTR)   STOP pb – push (no red ●)

MSG 055 FD06 Focused Inspection Procedure

A7U   MUX 1 L ← MIDDECK
                LDRI MODE 2 pb – push
                DTV ← PL2

                Perform IDC DEACTIVATION (IDC (Cue Card), PHOTO/TV) Step 1
                        LCC DEACTIVATION (LCS (Cue Card), PHOTO/TV)

10. CONFIG FOR MNVR TO INTERMEDIATE 2

NOTE
If an adjustment is made for FOV, manuever back to the
Sensor Position 5 values prior to performing this OCAS

R12   √Green Jumper – ISS

DNLK	Elbow
DTV	A
MON 1	RSC(D)
MON 2	B
A31p	25: Tip LEE (09: P1 LOOB)

NOTE
P1 LOOB provides full view of OBSS
when OBSS leaves Tip LEE field of view
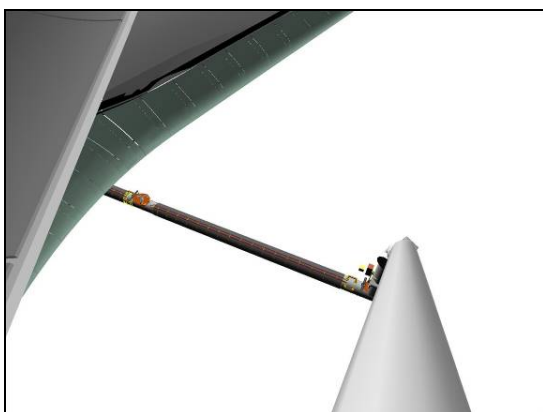
ELBOW (-20,0)

CCTV A (45,0)
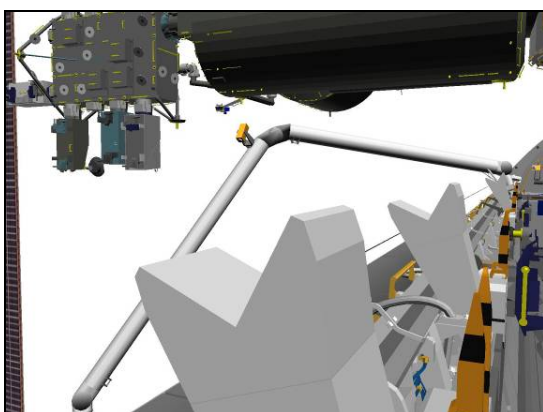
CCTV B (-25,-5)
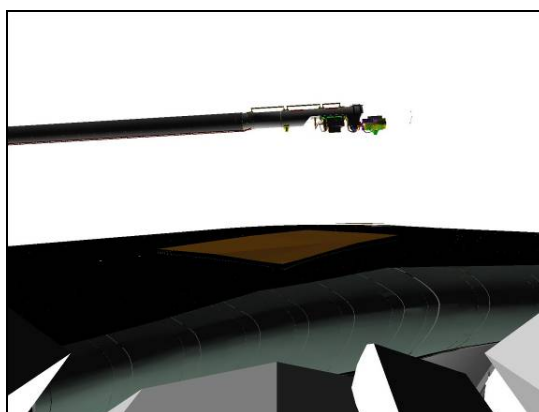
25: TIP LEE

SM 94 PDRS CONTROL
PL ID   – ITEM 3 +<u>1</u> EXEC
   INIT ID – ITEM 24 +<u>1</u> EXEC

END POS – ITEM 18 -<u>8</u> <u>1</u> <u>6</u> -<u>5</u> <u>7</u> <u>6</u> -<u>1</u> <u>8</u> <u>0</u> EXEC
     ATT – ITEM 21 +<u>0</u> +<u>1</u> <u>1</u> +<u>3</u> <u>2</u> <u>8</u> EXEC
CMD CK – ITEM 25 EXEC (GOOD)

Verify SENSOR POSITION 5

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-997	-395	-172	0	297	330	1
	SY	SP	EP	WP	WY	WR	
√	+47.0	+23.1	-61.7	-37.0	+13.2	-92.1	

11. MNVR TO INTERMEDIATE 2 POSN
    BRAKES – OFF (tb-OFF)
    MODE   – OPR CMD, ENTER (READY lt on)

    AUTO SEQ – PROCEED (IN PROG lt on)

    When AUTO SEQ IN PROG lt – off:
       BRAKES – ON (tb-ON)

    INTERMEDIATE 2 posn: (2:10)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-816	-576	-180	0	11	328	1
	SY	SP	EP	WP	WY	WR	
√	+74.5	+16.2	-33.0	-52.6	+6.0	-44.5	

CCTV A (45,0)

ELBOW (-30,10)

12. MNVR TO INTERMEDIATE 1 POSN
    SM 94 PDRS CONTROL
    END POS – ITEM 18 -<u>9</u> <u>6</u> <u>7</u> -<u>6</u> <u>4</u> <u>3</u> -<u>3</u> <u>8</u> <u>6</u> EXEC
         ATT – ITEM 21 + <u>6</u> <u>0</u> +<u>3</u> <u>4</u> <u>9</u> +<u>2</u> <u>8</u> <u>2</u> EXEC
    CMD CK – ITEM 25 EXEC (GOOD)

    BRAKES – OFF (tb-OFF)
    MODE   – OPR CMD, ENTER (READY lt on)

AUTO SEQ – PROCEED (IN PROG lt on)

When AUTO SEQ IN PROG lt – off:
BRAKES – ON (tb-ON)

INTERMEDIATE 1 posn: (2:15)

	X	Y	Z	PITCH	YAW	ROLL	PL ID
√	-967	-643	-386	60	349	282	1
	SY	SP	EP	WP	WY	WR	
√	+62.5	+25.2	-23.5	+0.9	-13.1	-21.8	
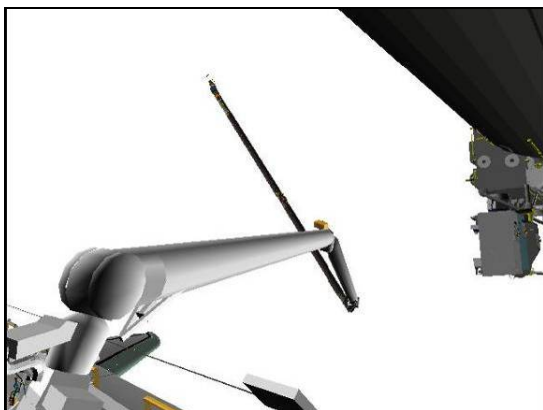
CCTV A (45,10)
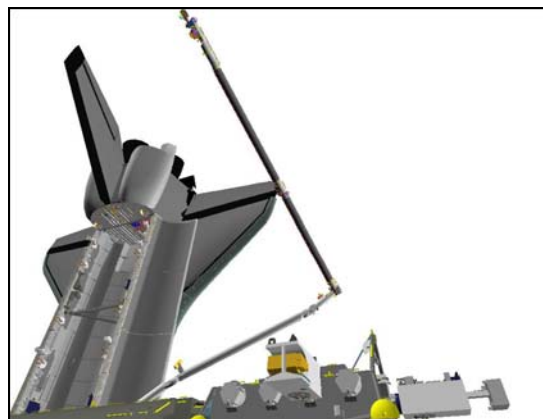
09: P1 LOOB (160,40)

13. <u>MNVR TO OBSS HANDOFF POSITION</u>

NOTE
Minimum clearance between SRMS and JEM is 29 inches
during manuever. Monitor with Camera A

SM 94 PDRS CONTROL
END POS – ITEM 18 -1 0 4 1 -3 6 2 -6 0 2 EXEC
    ATT – ITEM 21 +4 4 +2 7 0 +0 EXEC
CMD CK – ITEM 25 EXEC (GOOD)

BRAKES – OFF (tb-OFF)
MODE   – OPR CMD, ENTER (READY lt on)

AUTO SEQ – PROCEED (IN PROG lt on)

When AUTO SEQ IN PROG lt – off:
BRAKES – ON (tb-ON)

OBSS HANDOFF posn: (2:55)

	X	Y	Z	PITCH	YAW	ROLL	PL ID	
√	-1041	-362	-602	44	270	0	1	*
	SY	SP	EP	WP	WY	WR		
√	+25.8	+66.3	-49.0	-85.9	+10.7	-100.7		

*Display singularity

MODE   – not DIRECT (lt off)
PARAM   – PORT TEMP
JOINT   – CRIT TEMP

Notify SSRMS operator that SRMS at OBSS HANDOFF position with Brakes ON, GO for SSRMS manuever to OBSS Backoff.

CCTV A (20,30)
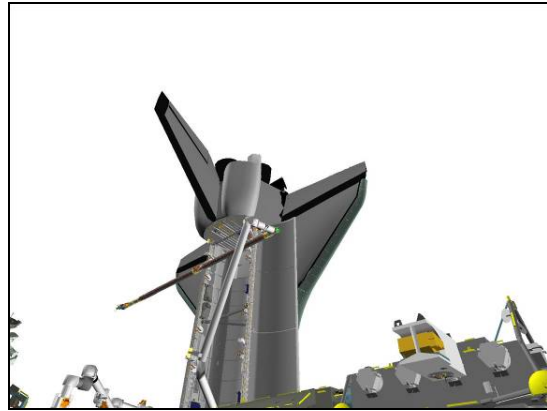
09: P1 LOOB (140,40)

1 Congratulations on a successful EVA 1. You've set the bar high for the remaining
2 three.
3
4 The MMT met today to review the orbiter systems and mission progress.
5
6 Endeavour continues to perform exceptionally well and the teams are very
7 complementary of the work accomplished so far in the mission.
8
9 Based on the analysis done over the past day, the DAT was able to clear damage
10 site 651RIL-001. The DAT team also presented the preliminary assessment on
11 damage site 600_2-001.
12 Because the available imagery could not clearly identify the specific cavity
13 dimensions, model uncertainties were used as part of the analysis process. The
14 results varied depending on what assumptions were made, and although the DAT
15 team was split if additional imagery was required (to help clear this damage site), the
16 MMT agreed that it was prudent to perform the Focused Inspection to provide the
17 actual dimensional data and incorporate into the analysis process.
18
19 Keep up the great work!
20

- Seven damages identified in TIIMS
- One remaining item in work
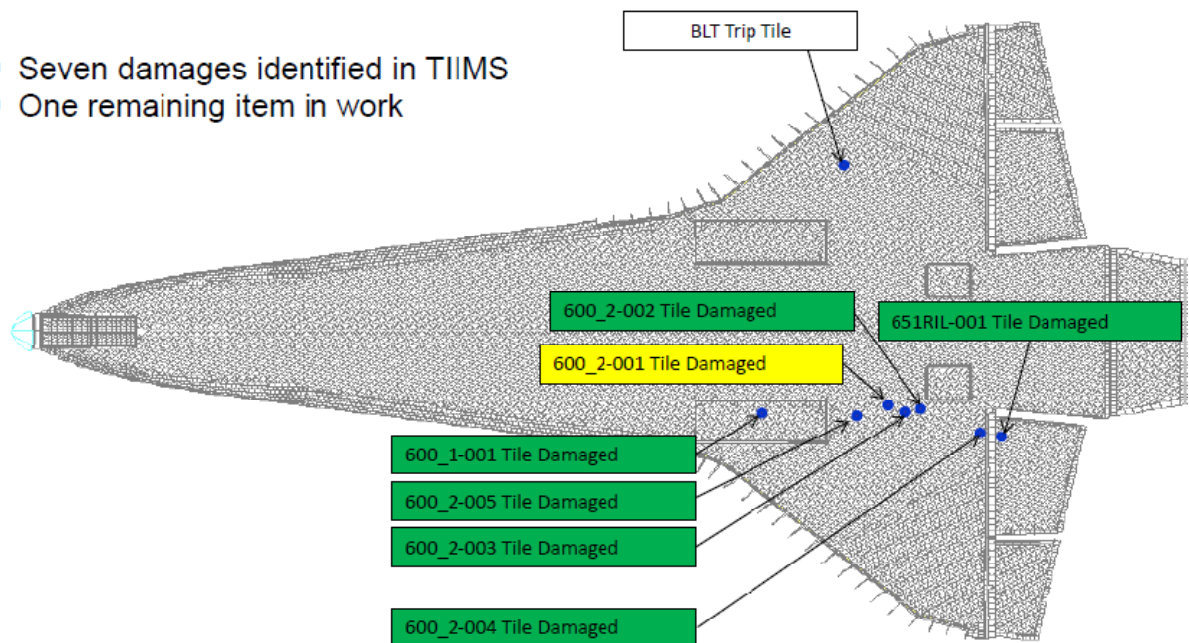
21
22
23

OBJECTIVE:
Final portion of routing the Ku-Band Coax Data Cable (W4026) through the US Lab forward area to support activation of the new Ku-Band Antenna Group-2.

LOCATION:
US Lab

DURATION:
1 hour

CREW:
One

PARTS:
Ku-Band Coax Data Cable (W4026) P/N 684-014026-0001

MATERIALS:
Wire Ties (P/N T30M2HALC2)
Velcro Ties
Gray Tape
Label Maker

TOOLS:
Digital Camera
CSA-O2 (Qty: 2)
Drawer 2:
      Ratchet, 1/4" Drive
      6" Ext, 1/4" Drive
      5/16" Socket, 1/4" Drive
Drawer 4:
      Connector Pliers
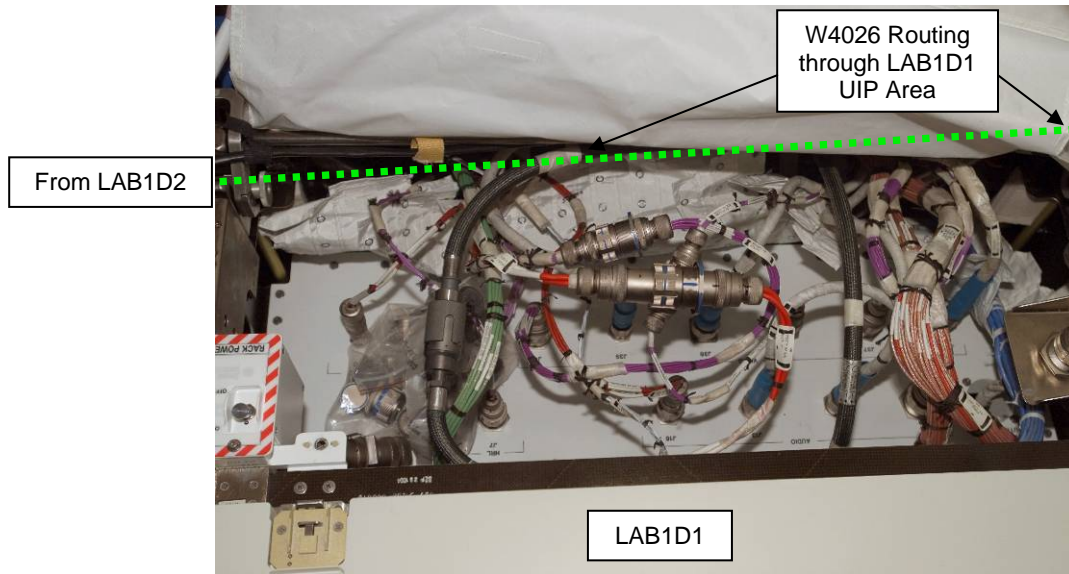
Figure 1.- W4026 Cable Routing Through LAB1D1 UIP Area.

LAB1P1   1. Route P1 end of W4026 from LAB1D2 UIP through the Port/Deck
                   Standoff and LAB1D1 UIP, securing as required (Wire Ties).
                   Refer to Figures 1 and 2.
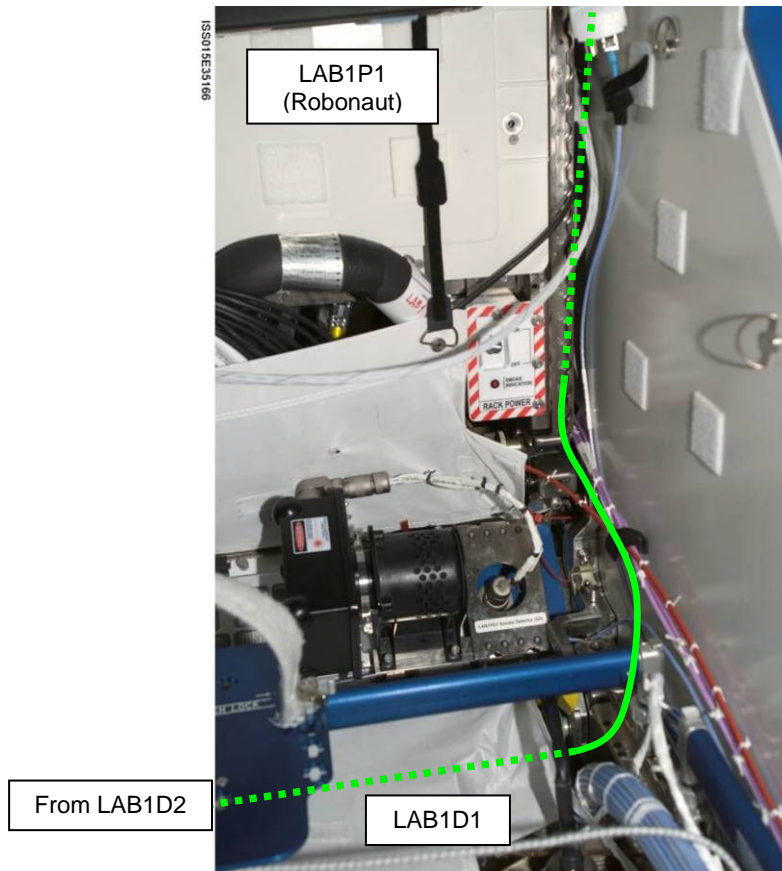
Figure 2.- W4026 Cable Routing at LAB1PD1.

CAUTION
1. Robonaut contains flammable materials and must not be removed from stowage bag during this activity.
2. Due to weight constraints, Robonaut must not be stowed on an ExPRESS rack.

LAB1P1   2. Remove Robonaut from LAB1P1 location and temporarily stow. Do not stow Robonaut on an ExPRESS Rack.
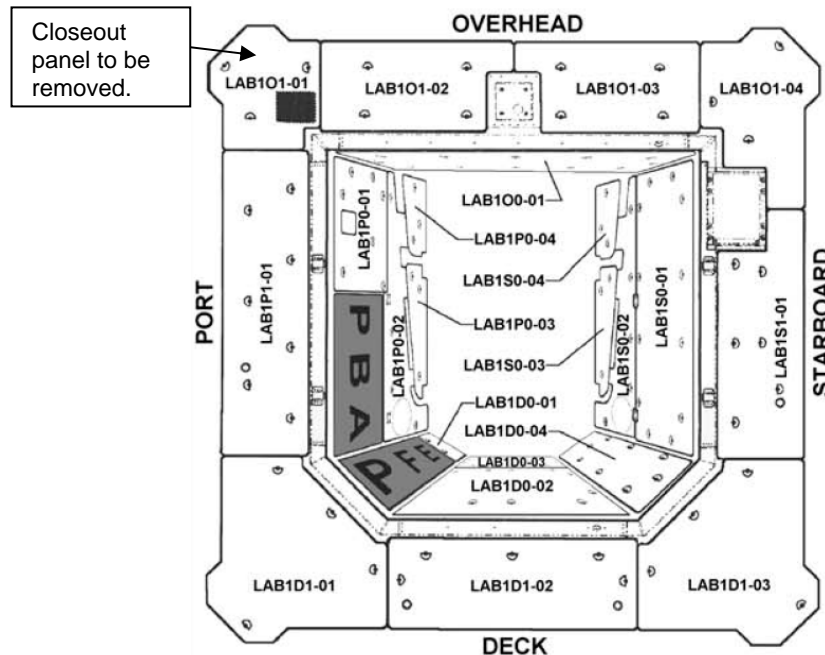
Figure 3.- LAB Forward Endcone Closeout Panels.

3. Remove Closeout Panel LAB1O1-01, quarter-turn fasteners (three). Refer to Figure 3.

4. Remove beta cloth cover enclosing Fwd/Port Endcone (velcro).

5. Perform CSA-O2 sampling in open cabin and behind removed closeout panels.
    Verify O2 % within Nominal Range specified on CSA-O2 decal

27 APR 11

W4026 cable will be routed through fire partition foam plugs here.

W4026 cable to be routed through LAB1O1 Z-Panel.

W4026 cable will be routed along structural members in the forward Endcone.
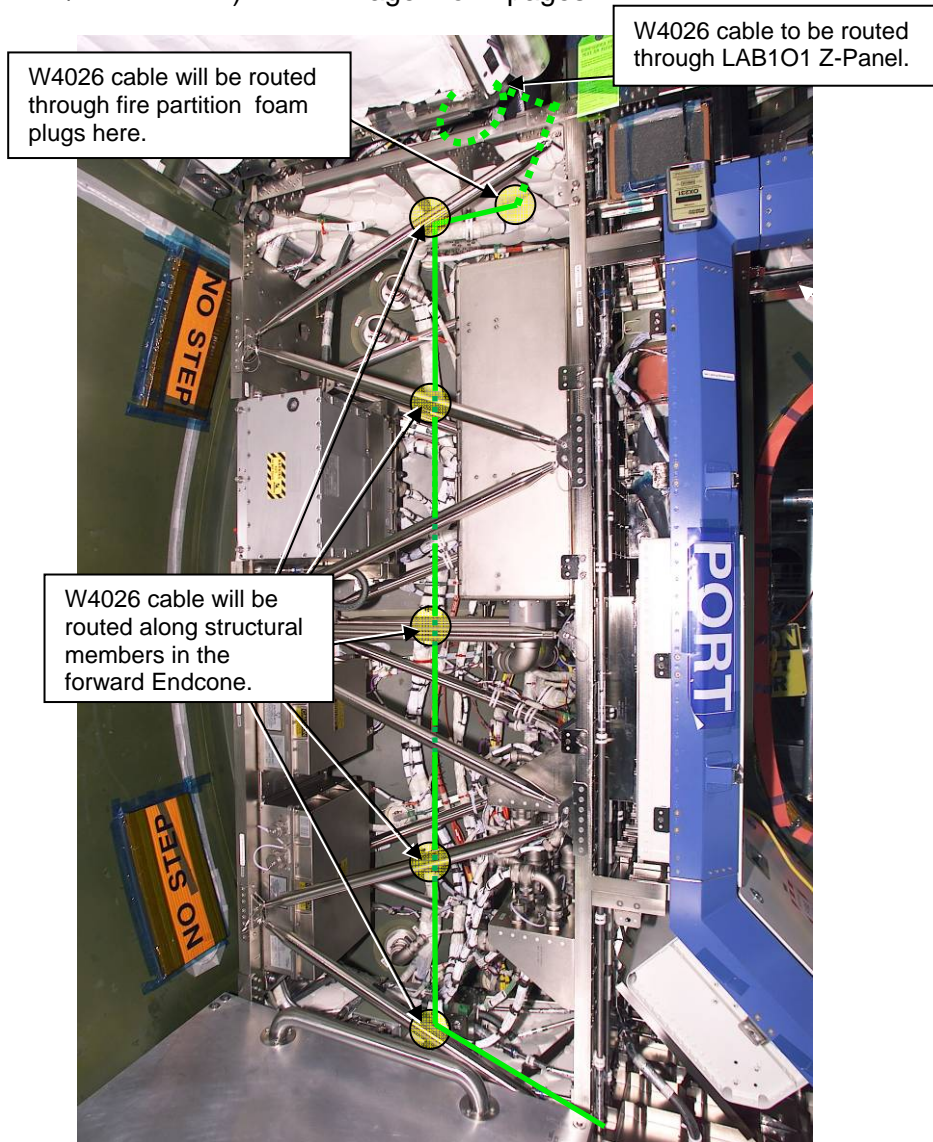
Figure 4.- W4026 Cable Routing in LAB Fwd/Port Endcone.

CAUTION
Ku-Band Coax Data Cable can be damaged if coiled too tightly. Maintain at least a 2" bend radius (4" diameter coils).

NOTE
Cables should be routed with at least two inch clearance from other cables when running in parallel to avoid EMI interference. W4026 may cross any other wire harness without EMI risk.

LAB1P0   6. Route W4026 cable along forward end of Lab Forward/Port
endcone, securing to structural members as necessary (Wire Ties).
Refer to Figure 4.

7. Route W4026 cable through the Lab Forward/Port endcone, upper fire suppression partition by removing/replacing foam plugs as required.
   If possible, re-install fire partition foam plugs, else notify **MCC-H**. Refer to Figure 4.
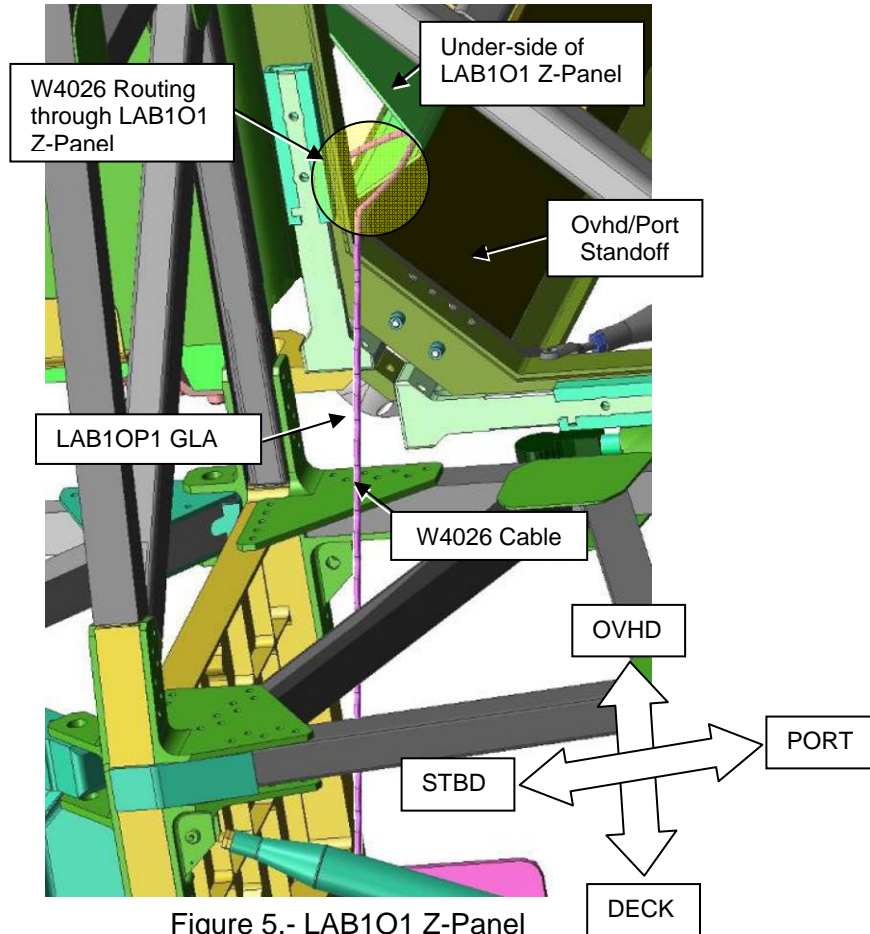
Figure 5.- LAB1O1 Z-Panel
(View Inside Fwd/Port Endcone, Looking Out).

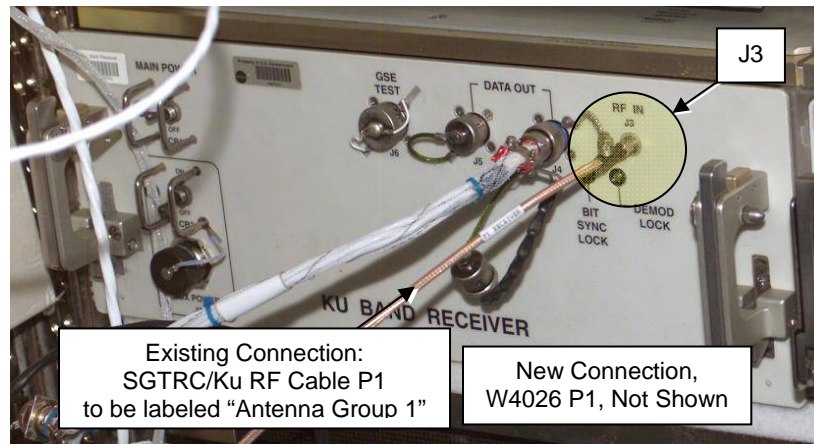8. Route W4026 cable through opening in Z-Panel at base of LAB1O1. Refer to Figures 4 and 5.

Figure 6.- Ku-Band Receiver.

> NOTE
> In the future, crew will be swapping cables at LAB1D2 J14 and
> the Ku-Band Receiver J3 so that ground can swap between Ku-
> Band Antenna Groups 1 and 2. For ease in identification of
> cables, new labels will be made and installed to expedite this
> future activity, and the paired cables will be tied together.

LAB1O1_K2   9. Secure P1 end of W4026 cable near the Ku-Band Receiver's J3
                 connector in EXPRESS Rack 2 by tieing it to the existing
                 SGTRC/Ku RF Cable mated to J3 (Velcro Tie).
              Do not cover existing labels when installing the following new labels:
                Label P1 end of SGTRC/Ku RF Cable "Antenna Group 1" (Label
                Maker)
                Label P1 end of W4026 "Antenna Group 2" (Label Maker)
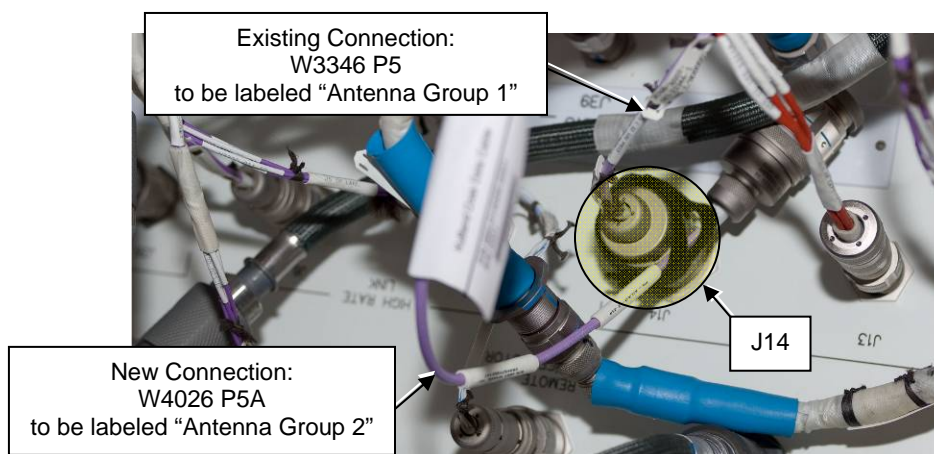   Refer to Figure 6.

Figure 7.- LAB1D2 UIP.

LAB1D2 UIP   10. Locate P5A end of W4026 in the LAB1D2 UIP Area and confirm it is
                 tied to the existing SGTRC/Ku RF Cable mated to J14 (Velcro Tie).
                 Do not cover existing labels when installing the following new labels:
                   Label P5 end of W3346 "Antenna Group 1" (Label Maker)
                   Label P5A end of W4026 "Antenna Group 2" (Label Maker)
                 Refer to Figure 7.

           11.   Photo document cable routing, and new labels (Digital Camera).

           12.   Replace closeout panel LAB1O1-01, quarter-turn fasteners (three).

           13.   Replace beta cloth cover for Fwd/Port Endcone (Velcro).

LAB1P1   14.   Replace Robonaut into LAB1P1 location.

           15.   Notify **MCC-H** task complete.
               Stow materials, tools.
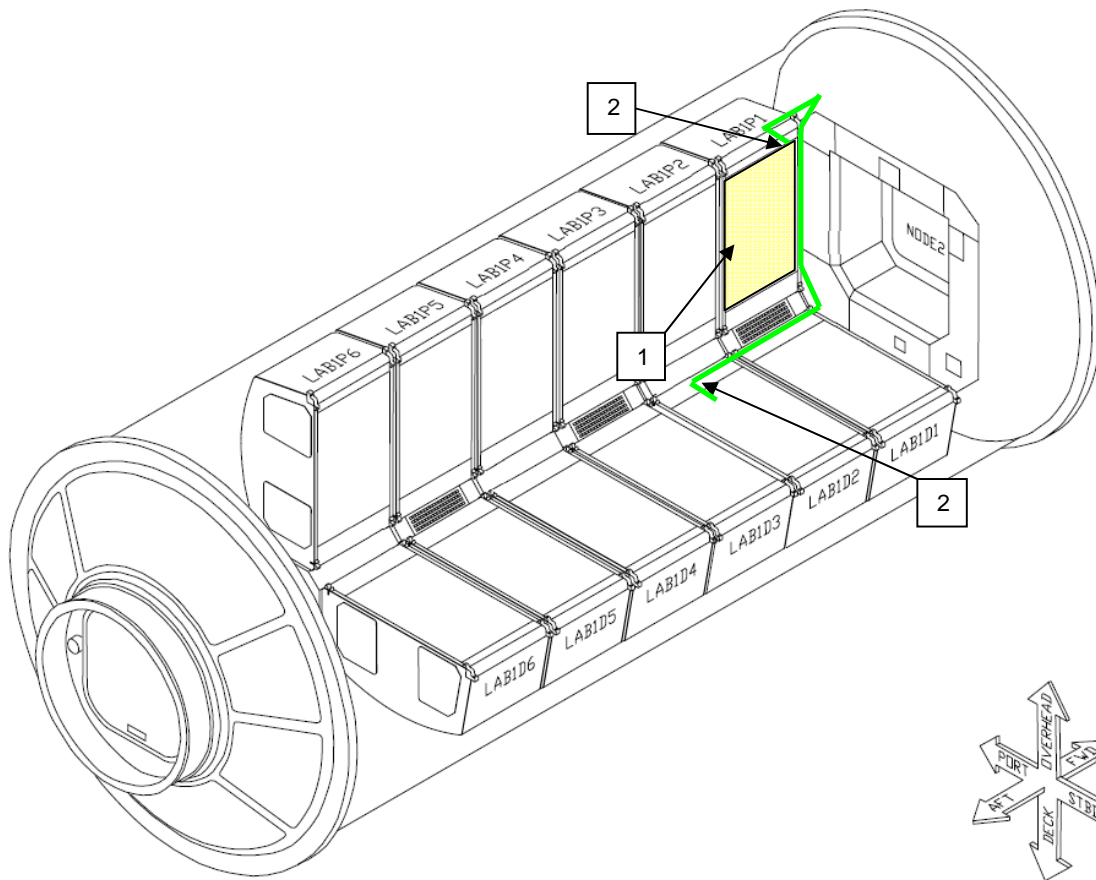
Ku-Band Coax Cable Routing Big Picture Words

Figure 1.- Ku-Band Coax Data Cable Routing - Part 3

During part 2 of the Ku-Band Coax Data Cable Routing procedure, a bundle of cable was stowed in the LAB1D2 UIP area. You will be completing this cable routing in order to provide CATO with the final link in the chain between the new Ku-Band Antenna and the ISS Ku-Band System. The cable you will be routing will go from the LAB1D2 UIP to the Ku-Band Forward Link Receiver in LAB1O1.

During the cable routing, care should be taken to route cables with at least two inch clearance from other cables when running in parallel to avoid EMI interference. Crossing wire harnesses is ok.

1 For accessing, you will need to relocate the bags with Robonaut in them out of the LAB1P1 location so that you can access the Forward/Port endcone. You should not need to remove any components from these bags, just simply relocate them as needed for the cable routing.

2 In a future activity, crew will be swapping cables at LAB1D2 J14 and the Ku-Band Receiver J3 so that MCC-H can swap between Ku-Band Antenna Groups 1 and 2. To make cable identification easier on future crewmembers, you will be making and installing new labels for these connectors. Finally, you will tie these paired cables together to keep them co-located.

MSG 059 FD06 Crew Choice Downlink Opportunities

1 Post-Sleep Morning of FD6

TDRS	AOS	LOS	Delta (min)	Notes
W-TDW	4/12:16	4/12:30	14	
E-TDE	4/13:06	4/13:25	19	
E-TDE	4/14:36	4/15:04	28	
W-TDW	4/15:27	4/15:59	32	
E-TDE	4/16:08	4/16:41	33	

2

3 Pre-Sleep Evening of FD6

TDRS	AOS	LOS	Delta (min)	Notes
W-TDW	5/01:16	5/01:36	20	
E-TDE	5/03:32	5/03:43	11	

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